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CONTENTS AND SUBJECT INDEX

Fallacies of the "Yeast Method" of Detecting Glucose in the Urine: Further Observations on a Mycologic Method to Identify Various Sugars and Other Carbon Compounds. Aldo Castellani, M.D., New Orleans, and F. E. Taylor, M.D., London.....523

A Method of Surgical Diathermy or Endothermy, Rendering it Painless Without an Anesthetic. Sinclair Tousey, M.D., New York.....527

Preparation of Gentian Violet Solutions for Intravenous Injection. Victor Burke, Ph.D., and Jane L. Newton, M.S., Pullman, Wash.....529

Sinus Respiratory Arrhythmia in Children with Rheumatic Heart Disease. Francis H. McCrudden, M.D., Boston 535

The Association Between Diabetes Mellitus and Chronic Infectious Arthritis. Earl O. G. Schmitt, M.D., and S. Franklin Adams, M.D., Rochester, Minn.....535

Erysipeloid and Swine Erysipelas in Man: A Clinical and Bacteriologic Review; Swine Erysipelas in the United States. Joseph V. Klauder, M.D., Philadelphia.....536

Reconstructive Surgery: A Case of Congenital Absence of Arms. Harry E. Mock, M.D., Chicago.....541

Chancroidal Ulcers Treated Locally with Antimony and Potassium Tartrate Solutions: Report of Eight Cases. Ernest Rupel, M.D., Indianapolis 544

Diabetic Lipemia Retinalis and Fat Embolism: Report of Case. Clarence F. Bantin, M.D., Omaha.....546

Personal Experiences in an Attack of Yellow Fever. Henry Hanson, M.D., New York.....548

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Obstruction and Perforation of the Small Intestine Due to a Coprolith. Wendell Downing, M.D., Le Mars, Iowa 550

Balsam of Peru in Mastoid Surgery. John Leshure, M.D., New York...550

SPECIAL ARTICLE

Technic of Medication: Eighth Article. Bernard Fantus, M.D., Chicago....551

MISCELLANY

Early Postmortem Examinations by Europeans in America. Ludvig Hektoen, M.D., Chicago.....576

EDITORIALS

Heredity and Obesity.....554

Bovine and Human Tuberculosis....554

Acacia and Fundamental Aspects of Intravenous Injections.....556

CURRENT COMMENT

Insulin in Excessive Vomiting and in Eclampsia 557

Variation in Diphtheria Bacilli.....557

Hospital Facilities and Surgical Tuberculosis 557

(Subject Index on next page)

ASSOCIATION NEWS 558

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See Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "T," Therapeutics; "Ml," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics.

A. M. A., railroad rates to Dallas....558
Dallas Session, Cancer Exhibit....558
Abdomen, acute, reflexes in....ab-586
Abscess, subphrenic....ab-579
Acacia intravenously....E-556
Accident, charitable institution, liability of....Ml-577
American Type Culture Collection....562
Anemia, treatment, iron....C-571
Anesthesia, effect on electrocardiogram..ab-585
Aneurysm of femoral artery....ab-581
Antimony for chancroidal ulcers....*544
Aortitis, syphilitic, prognosis of....ab-579
Appendicitis, chronic, shoulder pain in...ab-579
chronic, leukocyte count in....ab-581
Argentine Medical Association....565
Arms, absence of....*541
Arrhythmia, sinus respiratory, in children..*535
Arthritis, chronic infectious, vs. diabetes mellitus....*535
Association News....558
Asthma, vagus section in....ab-582
Athletes, professional wrestlers....ab-588
Bacilli, acid-resisting, in milk staining...ab-590
catarrhopyogenic infections and tuberculosis....ab-583
Balsam of Peru in mastoid surgery....*550
Bell-Beuttner operation....ab-582
Blood, ammonia, determination....ab-590
coagulation in tuberculosis....ab-587
glucose, free and combined....ab-590
hypercholesterolemia....C-571
potassium-calcium ratio....ab-588
pressure and kidney changes....ab-587
pressure vs. potassium permanganate..ab-583
transfusion apparatus....ab-583
Book Notices....574
Books Received....575, also adv. page 26
Brain, right and left hemispheres, functioning....ab-589
Breast cancer in male....ab-582
cancer, deep roentgenotherapy of....ab-585
British Medical Association and colonial service....564
Medical Register and Irish Free State...564
Carbohydrate metabolism vs. pancreas extract....ab-583
Castor oil for bacillary dysentery....ab-584
Cerebrospinal Fluid p_H in syphilitics....ab-585
albumin in polyneuritis....ab-586
Chancroid, antimony and potassium tartrate solutions for....*544
Chlorides, excretion after irradiation....ab-587
Cholesterol synthesis....C-571
Cornea, ulcus serpens of....ab-588
Correspondence....571
Deaths....569
Dermatology clinic in Groningen....566
Diabetes Insipidus, hypochloremic....ab-587
Diabetes Mellitus, lipemia retinalis and fat embolism complicating....*546
chronic infectious arthritis and....*535
Diathermy, painless surgical....*527
Digestion disorders, pancreas treatment..ab-589
Diphtheria bacilli, variation in....E-557
Duodenum, tumors, benign....ab-581
Dysentery, bacillary, castor oil for....ab-584
in psychiatric hospitals....ab-584
Dyspnea, mechanical....ab-589
Eclampsia, insulin treatment....E-557
Embolism, fat, in diabetes....*546
Emetics and vomiting....ab-587
Encephalitis, Epidemic, atropine resistance in....ab-588
hepatic sequels....ab-584
psychic sequelae....ab-586
Epilepsy, seizure, induced....ab-585
Esophagus, rupture, spontaneous....ab-582
Evidence, witness, impeachment for disclosures by physician....Ml-578
Eyelid, upper lid symptom....ab-590
Fasting secretion in infants....ab-589
First Aid, congress on....567
Flatfoot, popliteal nerve block for....ab-587
Food combinations....572
Foreign Letters....564
Fractures, treatment....ab-587
Gallbladder, acute typhoid cholecystitis...ab-579
Gastro-Enteritis, toxic....ab-589
Gastro-Enterostomy, failure of....ab-580
Gen, pathology of....ab-587
Gentian violet intravenously....*529
Glycosuria, yeast method in diagnosis....*523
Goiter vs. streptococcus....ab-582
Gonorrhea, clinic, statistics from....567
Growth, effect of tethelin on....ab-583
Guanidines, significance of....ab-583
Harrison Narcotic Law, tax reduced....562
Headache, occipital, vs. sinusitis....ab-586
Heart block, pathogenesis....ab-585
disease, rheumatic, in children....*535
electrocardiogram vs. anesthetics....ab-585
function test....ab-584
roentgenotherapy effect on....ab-579
rupture, spontaneous....ab-579
Hemolysis, reversion of....ab-588
Hemorrhage, cutaneous....ab-589
Hemorrhoids, removal of....ab-581
Heredity and scapular types....ab-584
obesity and....E-554
pathology of gen....ab-587
Heroism and scientific progress....C-571
Hospitals, psychiatric, dysentery in....ab-584
extension in Berlin....568
facilities and surgical tuberculosis....E-557
nursery, impetigo in....572
Hygiene, instruction of public....566
Idiocy, Mongolian....ab-589
Impetigo in hospital nursery....572
Inhalation, treatment....*551
Injection, treatment by....ab-588
intravenous, of acacia....E-556
intravenous, of gentian violet....*529
Insanity, manic-depressive....ab-583
Insulin, uses of....568
in excessive vomiting and in eclampsia..E-557
Insurance, accident, total and continuous disability defined....Ml-577
health, compulsory....C-571
Internship, Buenos Aires....566
Intestines, obstruction and perforation due to coprolith....*550
Iris, color of....ab-589
Irish Free State and Medical Register....564
Iron in anemia....C-571
Jaundice, pathogenesis....ab-590
Joints, injuries, active mobilization in...ab-585
Kidney changes and blood pressure....ab-587
glomerular function....ab-579
irradiation vs. chloride excretion....ab-587
transplantation....ab-589
Laboratory of Utrecht, report....566
League of Nations, epidemiologic report on yellow fever....563
meeting of Committee on....563
Leukemia, malaria treatment....ab-586
Leukocyte count in chronic appendicitis..ab-581
Lip in embryology and art....ab-585
Lipemia retinalis, diabetic....*546
Lipiodol in neurosurgery....ab-579
Lymph Glands, mesenteric, tuberculosis..ab-586
cervical, enlarged....572
Lymph Nodes, tuberculous adenitis....ab-579
Malaria plasmodium....ab-587
therapeutic, in leukemia....ab-586
Mastoid surgery, balsam of Peru in....*550
McKendrick, John Gray, death of....565
Malpractice, cyst, removal of, proof of negligence....Ml-578
Marriages....569
Martyrs and scientific progress....C-571
Medical Education, conference on teaching...566
Medical Education, Registration....573
Medication, technic of....*551
Medicine, progress, and heroism....C-571
Medicolegal....577
Meetings, Coming Meetings....578
Mental Defectives, sterilization....564
Mental Disease, biochemical studies in...ab-581
Mercury, combining it with neo-arsphenamine....572
Metabolism, basal, and obesity....E-554
Microbiology, conference on....566
Milk, pasteurization vs. tubercle bacilli....E-554, 573
Mitochondria, nature of....ab-583
Myopia and tuberculosis....ab-590
Necropsy, early, in America....*576
Neo-arsphenamine, combining mercury with..572
Nerve, surgery, lipiodol in....ab-579
popliteal, blocking, for flatfoot....ab-587
vagus section in asthma....ab-582
Neuralgia vs. sinusitis....ab-586
Neuritis, polyneuritis, with albumin in spinal fluid....ab-586
News....558
Nose, reconstruction....ab-586
Nurses, status of, Buenos Aires....565
Obesity and heredity....E-554
Ophthalmologists collaborate with opticians..566
Opticians collaborate with ophthalmologists..566
Osteomyelitis, chronic, treatment....ab-582
Pancreas extract orally vs. carbohydrate metabolism....ab-583
digestion of protein....ab-588
treatment of digestive disorders....ab-589
Paratyphoid, oral immunization against..ab-590
Pediatricians, meeting of....566
Pelvis, infections, chronic....ab-582
Peptic Ulcer, pathogenesis....ab-587
roentgenography in....566
stomach resection for....ab-580
Pertussin....573
Physical Examination manual in French....562
Potassium permanganate, effect on blood pressure....ab-583
tartrate solutions for chancroidal ulcers..*544
Pregnancy, extra-uterine, at full term....ab-582, ab-584
vomiting of, insulin in....E-557
Propaganda for Reform....570
Protein, pancreatic digestion of....ab-588
Pyelography, mediums for....ab-581
Pylorus spasm, treatment....ab-586
Pyramidal Tract disease, reflexes in....ab-590
Queries and Minor Notes....572
Quinine monopoly, Netherlands....568
Rat extermination....566
Reflexes, abdominal, in "acute" abdomen..ab-586
defense....ab-586
in pyramidal tract disease....ab-590
Relapsing Fever spirochetosis and syphilis..ab-588
Respiratory air current....*551
Roentgenotherapy, effect on heart....ab-579
Roentgen-ray martyr, Dr. Blackall....565
Rumpel-Leede Phenomenon....ab-589
Scapular types and heredity....ab-584
Scarlet Fever, Dick test in....ab-584
Shoulder, dislocation, habitual....ab-589
pain in appendicitis....ab-579
Sinusitis, pain in....ab-586
Skin diseases, ultraviolet rays in....ab-583
Society Proceedings....570
Spasmophilia, etiology....ab-585
Specialist, choice of....566
Spinal Cord, chordotomy for gastric crises..ab-586
compression by tumor....ab-580
Staining acid-resisting bacilli....ab-590
State Board Examinations....573
Sterilization of mentally defective....564
Stomach cancer, surgical prognosis....ab-585
resection, for ulcer....ab-580
secretion....ab-589
secretion in fasting infants....ab-589
Streptococcus vs. goiter....ab-582
Surgery, plastic....ab-586
reconstructive....*541
Swine Erysipelas in man....*536
Sympathectomy, periarterial, for leg ulcer..ab-586
Syphilis and relapsing fever spirochetosis..ab-588
clinic, statistics from....567
gastric crises in, chordotomy for....ab-586
in pregnant, treatment....ab-587
mercury with neo-arsphenamine in....572
serodiagnostic tests evaluated....566
spinal fluid p_H in....ab-585
Temperaments in healthy mates....ab-588
Tethelin, effect on growth....ab-583
Tetrachlorethylene as anthelmintic....ab-584
Thyroglossal tract cysts....ab-580
Thyroid cancer....ab-580
Tonics and Sedatives....Adv. page 22
Tubercle Bacilli, transmutation....ab-580
in milk....E-554, 573
Tuberculosis and myopia....ab-590
bovine, and human tuberculosis....E-554, 573
diaplyte vaccine in....ab-584
in Filipinos....ab-579
mortality in Saxony....ab-590
revenue from Christmas seals....562
serodiagnosis, Besredka vs. Wassermann tests....566
surgical, and hospital facilities....E-557
surgical, urine reaction in....ab-590
treatment, Spahlinger....567
Tuberculosis, Pulmonary, and catarrhopyogenic infections....ab-583
blood coagulation in....ab-587
Twins, difference in size....ab-589
Typhoid cholecystitis, acute....ab-579
Ulcer, leg, sympathectomy for....ab-586
Ultraviolet Rays in dermatology....ab-583
Ureter openings, ectopic....ab-582
Urine reaction, Wildbolz, in surgical tuberculosis....ab-590
sugar, yeast method of detecting....*523
Uterus, endoscopy of....ab-583
rupture, experimental....ab-582
Vaccine, diaplyte, effect in tuberculosis..ab-584
Venereal Disease, control, Switzerland....567
Vital Statistics, Germany....568
Vitamin A....ab-588
D....565
Vomiting and emetics....ab-587
Whooping Cough, paroxysmal, treatment..ab-583
Wrestlers, professional....ab-588
Yeast method for detecting glucose in urine..*523
Yellow Fever....563
personal experiences in attack of....*548

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FALLACIES OF THE "YEAST METHOD" OF DETECTING GLUCOSE IN THE URINE

FURTHER OBSERVATIONS ON A MYCOLOGIC METHOD TO IDENTIFY VARIOUS SUGARS AND OTHER CARBON COMPOUNDS *

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In several of the best known manuals of pathology and clinical methods, it is stated that the fermentation test by means of yeast is the only absolutely certain and specific test for glucose.

Since 1904, one of us [1] has called attention to the fallacy of this statement on various occasions, and some years ago we [2] published a paper, in which we described a new mycologic method for the detection of glucose and other carbon compounds, first theoretically devised by one of us (A. C.) in Ceylon. Our results were confirmed by various authorities. We [3] have since carried out some experiments on bakers' yeast (so-called German yeast), which is the yeast generally used in pathologic laboratories for the detection of glucose in the urine, and we can confirm what we stated in that paper. We have examined eight samples of bakers' yeast obtained in various quarters of London, and places near London, with the following results:

Sample 1, when inoculated directly into sugar peptone waters, fermented, with production of gas, glucose, levulose, maltose, galactose, saccharose, dextrin, lactose, adonitol, inulin, sorbite, dulcitol, mannitol, raffinose, arabinose, salicin, amygdalin, isodulcitol, erythrite and glycerin.

Sample 2 fermented, with production of gas, glucose, levulose, lactose, maltose and saccharose.

Sample 3 fermented, with production of gas, glucose, levulose, maltose and galactose; it produced acid but no gas in lactose.

Sample 4 fermented, with production of gas, glucose, levulose, maltose, galactose, saccharose, lactose, inulin and dextrin.

Sample 5 fermented, with production of gas, glucose, levulose and maltose.

Sample 6 fermented, with production of gas, glucose, levulose, maltose and galactose.

Sample 7 fermented, with production of gas, glucose, levulose, maltose, galactose, saccharose and lactose.

Sample 8 fermented, with production of gas, glucose, levulose, maltose, galactose, saccharose, dextrin, lactose, adonitol, inulin, sorbite, dulcitol, mannitol, raffinose, arabinose, salicin, amygdalin, isodulcitol, erythrite and glycerin.

Usually the ordinary samples of yeast, such as the foregoing obtained at bakeries, are not pure; they consist of one or two species of saccharomyces, with almost constantly a gram-positive bacillus. We therefore obtained cultures of pure yeast from the laboratories of well known yeast firms. Of three cultures so obtained, one fermented with the production of gas, glucose, levulose, galactose and saccharose; the other two fermented maltose in addition to these sugars.

When urine is fermented by bakers' yeast, we cannot, therefore, come definitely to the conclusion that the fermentable substance is glucose; it might be galactose, maltose, or other sugars. To detect glucose, recourse should be made to really specific germs for that sugar; i. e., germs that will ferment glucose only with the production of gas and no other carbohydrate.

Such organisms exist but are extremely rare, because, in our experience, when an organism ferments glucose with the production of gas, it will as a rule also ferment levulose and frequently other sugars and carbohydrates. One of the few germs that ferment glucose only with production of gas is *Monilia balcanica,* found by one of us (A. C.) some years ago; this monilia we unfortunately lost, together with other interesting fungi, in an accidental fire. Dr. Johns of New Orleans has informed us, however, that recently he has isolated a strain of typical *M. balcanica,* and that he is sending us a culture.

In the absence of *M. balcanica,* the next best organism to use instead of ordinary yeast is *Monilia krusei* Castellani. This monilia ferments, with the production of gas, glucose and levulose only. If a urine is fermented by it, we can conclude with certainty that it contains either glucose or levulose, or a mixture of the two. For practical purposes, therefore, it is much more suitable than bakers' yeast, which will, as a rule, ferment a very large number of sugars, including maltose, galactose, saccharose and lactose.

* Part of the text of this article, concerned with the identification of insulin, has been ommitted from THE JOURNAL. The complete text will be included in the reprints.

1. Castellani, Aldo: Meetings of the Ceylon Branch, Brit. M. A., 1904; Milroy Lectures, delivered before the Royal College of Physicians, London, 1918.

2. Castellani, Aldo; and Taylor, F. E.: The Mycological Detection and Determination of Certain Carbohydrates and Other Carbon Compounds in Pathological Work, Brit. M. J. **2**: 855 (Dec. 29) 1917.

3. Castellani, Aldo; and Taylor, F. E.: The Detection of Saccharosuria, Inosituria and Lactose by a Mycological Method, Brit. M. J. **1**: 183 (Feb. 15) 1919; Identification of Inulin by a Mycological Method, Biochem. J. **16**, 1922; Detection and Identification of Maltose, Galactose, Saccharose and Inulin by a Mycological Method, J. Trop. Med. **25**: 41 (Feb. 15) 1922; Observations sur une methode mycologique pour la recherche et l'identification de certains sucres et autres hydrates de carbone, Ann. de l'Inst. Pasteur **36**: 789 (Nov.) 1922; Further Researches on the Identification of Inulin and Maltose by a Mycological Method: Cases of Maltosuria, J. Trop. Med. **26**: 59 (Feb. 15) 1923.

MYCOLOGIC METHOD TO IDENTIFY VARIOUS SUGARS AND OTHER CARBON COMPOUNDS

We have been requested by several workers to give again a full description of our mycologic method for the identification of sugars and other carbohydrates apart from glucose. This, owing to the question of space, cannot be done. It will suffice to state briefly that we have not specific germs for each substance, germs which will ferment only maltose, galactose or inulin; but as there are a number of species of hyphomycetes and bacteria which select certain carbohydrates to the exclusion of others, we have found it possible, by using certain of these hyphomycetes and bacteria and comparing the results, to devise a general method. To understand the working of the method it is necessary to keep in mind the biochemical fermentative characters of certain fungi and bacteria, which are collected in table 1. We will limit ourselves to describing briefly the identification and detection of maltose, galactose and inulin, and we will also give a list of the principal mycologic formulas we have devised and employed in the identification of various other carbon compounds.

TABLE 1.—*Fermentative Characters of Certain Monilias and Bacteria* *

	Glucose	Levulose	Maltose	Galactose	Saccharose	Lactose	Mannitol	Duleitol	Dextrin	Raffinose	Arabinose	Adonitol	Inulin	Sorbitol	Starch	Glycerol	Inositol	Salacine	Amygdalin	Isodulcitol	Erythrytol
Monilia balcanica (Castellani)	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monilia krusei (Cast.)	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monilia pinoyi (Cast.)	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monilia metalondinensis (Cast.)	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monilia tropicalis (Cast.)	+	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monilia rhoi (Cast.)	+	+	0	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monilia bronchialis (Cast.)	+	+	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monilia macedoniensis (M. macedoniensoides) Cast.	+	+	0	+	+	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0
Bacillus coli-communis (Esch.), strain 0	+	+	+	+	0	+	+	+	+	+	+	0	0	+	0	+	0	+	0	+	0
Bacillus coli-communior, strain 0	+	+	+	+	+	+	+	+	+	+	+	0	0	+	0	+	0	+	0	+	0
Bacillus paratyphosus B, var. M. Schottmüller	+	+	+	+	0	0	+	+	+	0	+	0	0	+	0	+	0	+	0	+	0
Bacillus paratyphosus A (Schott.)	+	+	+	+	0	0	+	+	+	0	+	0	0	+	0	0	0	0	0	+	0
Bacillus columbensis (Cast.)	+	+	+	+	0	0	+	+	0	0	+	0	0	+	0	+	0	+	0	+	0
Bacillus asiaticus (Cast.)	+	+	+	+	+	0	+	0	+	+	+	0	0	+	0	+	0	0	0	+	0
Bacillus pseudoasiaticus (Cast.)	+	+	+	+	+	0	+	+	+	+	+	0	0	+	0	+	0	+	0	+	0
Bacillus morgani (Cast. and Chalm.), strain S	+	+	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* In the tables and in the mycologic formulas, + indicates gas; 0, absence of gas; simple acid fermentation is not taken into account.

Identification of Maltose.—In order to determine whether a given substance contains maltose or not, a sterile 1 per cent solution in sugar-free peptone water is made and distributed into two tubes, each containing a Durham's fermentation tube or similar appliance. One of the following procedures is then used:

A. A 1 per cent sterile solution in sugar-free peptone water is made of the substance to be tested for maltose. The solution is distributed into two tubes, which are labeled 1 and 2. Tube 1 is inoculated with *Monilia tropicalis* and tube 2 with *Monilia macedoniensis*, or other monilias of the same group (*M. macedoniensoides*). If, after four days' incubation at 37 C., tube 1 contains gas and tube 2 does not, we can come to the conclusion that the substance is maltose. This is easily understood if we keep in mind the biochemical reactions of the two monilias. *M. tropicalis* ferments, with the production of gas, the following substances: glucose, levulose, galactose, maltose and saccharose. *M. macedoniensis* and all other monilias of the macedoniensis group (*M. macedoniensoides*, etc.) ferment, with the production of gas, the following carbon compounds: glucose, levulose, galactose, saccharose and inulin.

The substance we are investigating has been fermented with the production of gas by *M. tropicalis*. It can be, therefore, only glucose, levulose, maltose, galactose or saccharose; but if it had been glucose, levulose, galactose or saccharose, it would have been fermented with production of gas by *M. macedoniensis* also. Therefore, it can only be maltose.

Monilia tropicalis (Cast.)..... + } = Maltose
Monilia macedoniensis (Cast.)..... 0 }

B. Tube 1 is inoculated with *Monilia pinoyi* and tube 2 with *Monilia krusei*. The two tubes are placed in an incubator at from 35 to 37 C. for three days. If, after that time, tube 1 (*Monilia pinoyi*) contains gas and tube 2 (*Monilia krusei*) does not, we can come to the conclusion that the substance is maltose. This is easily understood by keeping in mind the fermentative reactions of the two monilias. *Monilia pinoyi* ferments with the production of gas only the following carbon compounds: glucose, levulose and maltose. *Monilia krusei* ferments, with the production of gas, only glucose and levulose.

Our substance has been fermented, with the production of gas, by *Monilia pinoyi;* it can be only glucose, levulose or maltose, but if it had been either glucose or levulose it would have been fermented also by *Monilia krusei;* therefore, it can be only maltose.

C. Tube 1 is inoculated with *M. metalondinensis* and tube 2 with *M. macedoniensis* or *M. macedoniensoides*. The two tubes are incubated at 37 C. for four days. If after that time tube 1 contains gas and tube 2 does not, the substance is maltose. This is explained by the fact that *M. metalondinensis* ferments with the production of gas only glucose, levulose, maltose and galactose; and *M. macedoniensis* only the following carbon compounds: glucose, levulose, galactose, saccharose and inulin.

The substance we are investigating has been fermented by *M. metalondinensis*. It can be, therefore, only glucose, levulose, maltose or galactose; but if it were glucose, levulose or galactose, it would have been fermented also by *M. macedoniensis*. There is only one possibility left—it must be maltose.

Monilia metalondinensis (Cast.)..... + } = Maltose
Monilia macedoniensis (Cast.)..... 0 }

Identification of Maltose when Present with Other Common Fermentable Substances (Glucose, Levulose, Galactose, Saccharose).—If a liquid is suspected of containing maltose mixed with glucose, levulose, galactose and saccharose, it is fermented with *Monilia macedoniensis* or *M. macedoniensoides*. If after exhaustion with *M. macedoniensis* the liquid is still fermented, with the production of gas, by *Monilia pinoyi*, *Monilia tropicalis* or *Monilia metalondinensis*, the conclusion is that the liquid also contains maltose. Strains of the various monilias should be used which have approximately the same fermentative power on the various carbohydrates they all ferment.

Identification of Galactose.—In determining whether or not a certain substance is galactose, the following procedures are used:

A. First, a 1 per cent sterile solution of the substance is made in sugar-free peptone water and distributed into two tubes, each containing a fermentation tube. Tube 1 is inoculated with *M. metalondinensis* and tube 2 with *M. pinoyi*. If, after four days' incubation at 37 C., tube 1 contains gas and tube 2 does not, the substance must be galactose. The explanation lies in the fact that *M. metalondinensis* ferments only the following carbon compounds: glucose, levulose, maltose and galactose. *M. pinoyi* ferments only the following substances: glucose, levulose and maltose.

The substance has been fermented by *M. metalondinensis.* It can be, therefore, only glucose, levulose, maltose or galactose. It has not been fermented by *M. pinoyi,* so it cannot be glucose, levulose or maltose. There is only one possibility left—it must be galactose.

Monilia metalondinensis ..... + } = Galactose
Monilia pinoyi ..... 0 }

B. The solution is distributed into three tubes, each containing a fermentation tube. Tube 1 is inoculated with *M. metalondinensis,* tube 2 with *M. krusei* and tube 3 with *M. macedoniensis.* The three tubes are placed in an incubator at 37 C. for four days. If, after that period of time, tubes 1 and 3 contain gas and tube 2 does not, the substance is galactose.

This is easily explained by keeping in mind the biochemical reactions of the three fungi. *M. metalondinensis* produces gas only in glucose, levulose, maltose and galactose; *M. macedoniensis* produces gas only in glucose, levulose, galactose, saccharose and inulin; *M. krusei* produces gas only in glucose and levulose.

The substance we are investigating has been fermented, with the production of gas, by *M. metalondinensis.* It can be, therefore, only glucose, levulose, maltose or galactose. It cannot be glucose or levulose, because in such a case it would have been fermented also by *M. krusei,* and it cannot be maltose, because it would not have been fermented by *M. macedoniensis.* There is only one possibility left—it must be galactose.

Monilia metalondinensis ..... +
Monilia krusei ..... 0 } = Galactose
Monilia macdoniensis ..... +

C. The solution is distributed into three tubes: tube 1 is inoculated with *M. Macedoniensis,* tube 2 with *M. krusei* and tube 3 with *B. paratyphosus* B Schottmüller. If, after four days in the incubator at 37 C., tube 1 shows presence of gas, tube 2 shows absence of gas, and tube 3 shows presence of gas, we can come to the conclusion that the substance we are investigating is galactose. As the substance has been gas-fermented by *M. macedoniensis* it can be only glucose, levulose, galactose, saccharose or inulin; but it has not been fermented by *M. krusei,* therefore it cannot be glucose or levulose. It can only be galactose, saccharose or inulin, but if it had been saccharose or inulin it would not have been fermented by *B. paratyphosus* B. There is only one possibility left—it must be galactose.

Monilia macedoniensis (Cast.)..... +
Monilia krusei (Cast.)..... 0 } = Galactose
Bacillus paratyphosus B. (Schott.).. +

D. The solution is distributed into two tubes; tube 1 is inoculated with *B. morgani* (strain S) and tube 2 with *Monilia krusei.* If after three days in the incubator at 35 C., tube 1 contains gas and tube 2 does not, we can come to the conclusion that the substance is galactose.

This is easily understood by keeping in mind the fermentative reactions of the two germs. *Bacillus morgani* (strain S) ferments, with production of gas, only glucose, levulose and galactose, and *Monilia krusei* only glucose and levulose. The substance we are investigating has been fermented with production of gas by *B. morgani;* it can only be glucose, levulose or galactose. It has not been fermented by *Monilia krusei;* it cannot, therefore, be glucose or levulose; it must be galactose.

B. morgani (Cast. and Chalm.).... +
Monilia krusei (Cast.)..... 0 } = Galactose

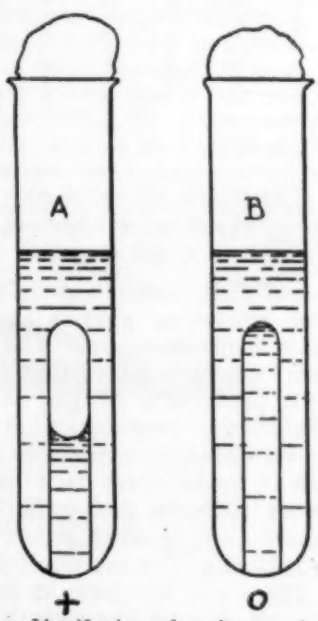
Identification of Galactose When Present with Other Common Fermentable Substances (Glucose, Levulose, Maltose, Saccharose).—To detect galactose in a liquid in which it is suspected to be present together with glucose, levulose, maltose or saccharose, the liquid is inoculated with an organism which gas-ferments all the sugars we have mentioned except galactose, for instance, *Monilia bronchialis.* If after exhaustion with *M. bronchialis* the liquid is still fermentable with *B. morgani, Monilia pinoyi,* or *Monilia tropicalis,* the inference is that the liquid contained galactose in addition to other fermentable substances.

USE OF THE MYCOLOGIC METHOD IN URINE ANALYSIS

From numerous experiments we have carried out, by adding to samples of urine various sugars and other carbohydrates, and also from a fairly large number of pathologic specimens, we can say that the method can be used in urine analysis for the detection and differentiation of certain sugars and other carbon compounds, such as glucose, maltose, galactose, lactose and pentose, provided the amount of such substances present is not too minute (not less than 0.1 per cent). The urine is distributed in sterile tubes containing Durham's fermentation tubes or similar devices and inoculated with the organisms already mentioned. Two points of considerable importance are:

1. The urine must be aseptic; if it cannot be collected aseptically it should be sterilized as soon as possible, after distribution in the tubes, by heating in Koch's steamer for thirty minutes; once is sufficient for practical purposes, but in special cases it may be heated on two or three consecutive days. It should never be autoclaved, as this procedure may alter the characters of the sugars and other carbohydrates present. Another procedure is to filter the sample of urine by means of a Chamberland or Berkefeld filter.

2. It is of great advantage to add a third or the same amount of peptone water to the urine; otherwise the organisms may, at times, grow very scantily, and there may be no distinct production of gas.



Identification of maltose: *A,* Monilia tropicalis; *B,* Monilia macedoniensis.

If a urine is Fehling-reducing, we can determine which it is of the six sugars found in pathologic urines (glucose, levulose, maltose, galactose, lactose, pentose) by the following procedure:

The urine is distributed into six tubes, each containing a Durham's fermentation tube. They are labeled 1, 2, 3, 4, 5 and 6. Tube 1 should be inoculated with *Monilia balcanica* Castellani, or *M. parabalcanica* Castellani; tube 2 with *M. krusei* Castellani; tube 3 with *M. pinoyi* Castellani; tube 4 with *M. metalondinensis* Castellani; tube 5 with *B. coli-communior* Escherich, and tube 6 with *B. paratyphosus* B Schottmüller.

After the tubes are incubated at 35 C. for four days, the results may be read:

1. If in tubes 1, 2, 3, 4, 5 and 6 gas is present, the reducing substance is glucose.

2. If tube 1 contains no gas, and in tubes 2, 3, 4, 5 and 6 gas is present, the reducing substance is levulose.

3. If tubes 1 and 2 contain no gas, and in tubes 3, 4, 5 and 6 gas is present, the reducing substance is maltose.

4. If tubes 1, 2 and 3 contain no gas, and in tubes 4, 5 and 6 gas is present, the reducing substance is galactose.

5. If tubes 1, 2, 3 and 4 contain no gas, and in tubes 5 and 6 gas is present, the reducing substance is a pentose.

6. If tubes 1, 2, 3, 4 and 6 contain no gas, and in tube 5 gas is present, the reducing substance is lactose.

7. If none of the tubes contain gas, the reducing substance belongs to the nonfermentable group of reducing substances, including uric acid, creatinine, hippuric acid, and others.

Presence in the Urine of More Than One Reducing Substance.—If the presence of more than one sugar and other carbohydrates is suspected, this may, to a certain extent, be ascertained and the various carbohydrates determined by our mycologic method. If we assume that the urine, after gas fermentation with *M. balcanica* Cast., is still fermentable with production of gas by *M. krusei* Cast., the conclusion is that in addition to glucose the urine must have contained levulose; strains of *M. balcanica* Cast., and of *M. krusei* Cast. having approximately the same fermentation power on glucose should be used. If, now, after exhaustion, first with *M. balcanica* Cast. and then with *M. krusei* Cast. the urine is fermentable with production of gas by *B. morgani* Cast. and Chalm. the presumption is that it contained three sugars—glucose, levulose and galactose. The explanation is found in the fact that *M. balcanica* Cast. ferments, with the production of gas, glucose only; *M. krusei* Cast., glucose and levulose; *B. morgani* Cast. and Chalm., glucose, levulose and galactose.

There are, however, in certain circumstances some sources of error, but with these, as well as the precautions for avoiding them, and with the whole subject of the presence of more than one reducing substance, we propose dealing in a future paper.

TABLE 2.—*Identification of Certain Fehling-Reducing Substances*

Monilia Balcanica (Cast.)	Monilia Krusei (Cast.)	Monilia Pinoyi (Cast.)	Monilia Metalondinensis (Cast.)	Bacillus Paratyphosus B (Schott.)	Bacillus Coli (Esch.)	Reducing Substance *
+	+	+	+	+	+	Glucose
0	+	+	+	+	+	Levulose
0	0	+	+	+	+	Maltose
0	0	0	+	+	+	Galactose
0	0	0	0	+	+	Pentose
0	0	0	0	0	+	Lactose
0	0	0	0	0	0	Nonfermentable reducing substances of the groups creatinine, hippuric acid, uric acid, etc.

* The reducing substance is made into a 1 per cent peptone water solution. Selected strains of the various organisms with permanent biochemical reactions and producing a large amount of gas should be used.

SUMMARY

The whole subject can be condensed into the following formulas:

MYCOLOGIC FORMULAS

GLUCOSE

Monilia balcanica (Cast.) + = Glucose

LEVULOSE

Monilia krusei (Cast.) + } = Levulose
Monilia balcanica (Cast.) 0 }

MALTOSE

Monilia tropicalis (Cast.) + } = Maltose
Monilia macedoniensis (Monilia macedoniensoides), Cast. 0 }

Monilia metalondinensis (Cast.) + } = Maltose
Monilia macedoniensis (Cast.) or Monilia macedoniensoides 0 }

Monilia pinoyi (Cast.) + } = Maltose
Monilia krusei (Cast.) 0 }

Monilia pinoyi (Cast.) + } = Maltose
Monilia macedoniensis (Monilia macedoniensoides), Cast. 0 }

Monilia tropicalis (Cast.) + } = Maltose
Monilia rhoi (Cast.) 0 }

Monilia pinoyi (Cast.) + } = Maltose
Bacillus morgani (Cast. and Chalm.). 0 }

Monilia metalondinensis (Cast.) + } = Maltose
Bacillus morgani (Cast. and Chalm.). 0 }

GALACTOSE

Monilia metalondinensis (Cast.) + } = Galactose
Monilia pinoyi (Cast.) 0 }

Monilia metalondinensis (Cast.) + } = Galactose
Monilia krusei (Cast.) 0 }
Monilia macedoniensis (Cast.) +

Monilia tropicalis (Cast.) + } = Galactose
Monilia bronchialis (Cast.) 0 }

Monilia tropicalis (Cast.) + } = Galactose
Monilia macedoniensis (Cast.) +
Monilia krusei (Cast.) 0 }
Bacillus paratyphosus B (Schott.) +

Bacillus morgani (Cast. and Chal.) + } = Galactose
Monilia krusei (Cast.) 0 }

SACCHAROSE

Monilia tropicalis (Cast.) + } = Saccharose
Monilia metalondinensis (Cast.) 0 }

Monilia tropicalis (Cast.) + } = Saccharose
Bacillus coli-communis, sensu stricto (does not ferment saccharose), Escher 0 }

Monilia tropicalis (Cast.) + } = Saccharose
Bacillus paratyphosus B (Schott.) 0 }

Monilia macedoniensis (Cast.) + } = Saccharose
Bacillus coli communis, sensu stricto (Escher.) 0 }
Bacillus coli-communior +

Monilia macedoniensis (Cast.) + } = Saccharose
Bacillus paratyphosus B (Schott.) 0 }
Bacillus coli-communior +

Bacillus coli-communis, sensu stricto (Escher.) 0 } = Saccharose
Bacillus neapolitanus (Emmerich) + }

Bacillus coli-communis, sensu stricto (Escher.) 0 } = Saccharose
Bacillus asiaticus (Cast.) + }

INULIN

Monilia macedoniensis (Monilia macedoniensoides), Cast. + } = Inulin
Monilia tropicalis (Cast.) 0 }

Monilia macedoniensis (Cast.); (Monilia macedoniensoides) + } = Inulin
Monilia rhoi (Cast.) 0 }

Monilia macedoniensis (Monilia macedoniensoides), Cast. + } = Inulin
Bacillus coli-communior (Escher.); Bacillus pseudocoli (Cast.); Bacillus neapolitanus (Emm.) 0 }

Monilia macedoniensis (Monilia macedoniensoides), Cast. + } = Inulin
Bacillus asciaticus (Cast.) 0 }

INOSITOL

Bacillus paratyphosus B, var M. (Schott.) + } = Inositol *
Bacillus paratyphosus A (Schott.) 0 }

GLYCEROL

Bacillus asiaticus (Cast.) + } = Glycerol *
Bacillus paratyphosus B, var M. (Schott.) 0 }
Bacillus columbensis, Strain L (Cast.) + }

CHEMICOMYCOLOGIC FORMULAS

SACCHAROSE

Fehling 0 } = Saccharose
Monilia tropicalis (Cast.) + }

LACTOSE

Fehling + } = Lactose
Bacillus paratyphosus B (Schott.) 0 }
Bacillus coli-communis (Esch.) + }

PENTOSE

Fehling + } = Pentose †
Monilia tropicalis (Cast.) 0 }
Bacillus paratyphosus B (Schott.) + }
B. coli-communis (Esch.) + }

* With great probability.
† Generally arabinose.

As is the case with every other biologic method, the results must be considered to be relatively and not absolutely certain. It is essential to use only selected strains of the organisms mentioned, with constant characteristics and producing a large amount of gas.

CONCLUSIONS

1. The yeast method, as described in most textbooks of medicine and clinical methods, is not specific for glucose, notwithstanding the statements to that effect. Ordinary samples of yeast, as a rule, will ferment levulose, maltose, galactose, saccharose, lactose and many other carbon compounds in addition to glucose. When a sample of urine is fermented by ordinary yeast, we cannot come to the conclusion that the urine contained

glucose, as it might have contained maltose, galactose, lactose, or other sugars.

2. For the identification of glucose and its detection in the urine, a fungus should be used which ferments only glucose. Such an organism is in *Monilia balcanica* Castellani. When *Monilia balcanica* for some reason is not obtainable, the next best organism is *Monilia krusei* Castellani, which ferments only glucose and levulose, and does not touch maltose, galactose, lactose or any other carbon compound. When a urine is fermented by *Monilia krusei*, it contains with certainty either glucose or levulose or both.

3. For the identification of various sugars and other carbon compounds, apart from glucose, the mycologic method, first devised by one of us (A. C.) in 1904, in Ceylon, and which we worked out together at King's College Bacteriological Laboratories in London, and published in 1917,[1] may be used with advantage. This method seems to be especially useful in the identification of maltose and galactose.

A METHOD OF SURGICAL DIATHERMY OR ENDOTHERMY

RENDERING IT PAINLESS WITHOUT AN ANESTHETIC

SINCLAIR TOUSEY, M.D.
NEW YORK

Just as a current of electricity heats an electric light filament, the high frequency current heats tissues through which it passes. The heating of the tissues by heat generated in them gives the name diathermy or endothermy to the application.

For many medical purposes, such as the treatment of arthritis, neuritis, sinusitis and pneumonia, large electrodes making contact with many square inches of the skin distribute the heat generated through such an amount of tissue as to raise the temperature only the few degrees required to produce a curative, not a destructive, effect.

ELECTRODESICCATION

The use of a very small electrode like the point of a needle concentrates the current and raises the temperature of the tissues at that point to the destructive degree. This takes place whether the needle is in direct contact with the tissues or whether it has to leap across a short air space. The current employed may be tested before approaching the patient by holding the electrode one-fourth inch from a silver coin held in the operator's fingers (fig. 1 *A*). A shower of sparks passes to the coin, and the current enters and passes through the operator's fingers to his body, but without any shock or inconvenience. It is only after applying the sparks to the coin for an unusual length of time that the coin begins to feel warm. The current or the heat generated in the tissues quickly destroys the surface tissue and converts it into a dry mass. This may be left as a scab and protection while the underlying surface is healing, or it may be curetted away. If the needle is thrust more deeply into the tissue, white bubbles emerge from the puncture, and the destruction is correspondingly deeper.

The current employed for electrodesiccation is the Oudin monopolar high frequency current of moderately high voltage.

ELECTROCOAGULATION

Electrocoagulation is another form of tissue destruction accomplished by a bipolar application of the d'Arsonval low tension high frequency current. One electrode covers many square inches at some indifferent part of the body, while the other active electrode is of small size, perhaps a metal disk half an inch in diameter. The indifferent electrode must make a perfect electric contact with the skin and so must the active electrode. The tissues are cooked, extending a certain distance from the active electrode, and of course are killed. Without condemning the method in toto, I cannot refrain from mentioning some of its dangers and drawbacks. A certain number of patients have been killed, doubtless by the accidental passage of a heavier current than was intended. It is difficult exactly to gage the depth to which the tissues have been devitalized. This is especially true when the active electrode is a metal disk, but with a needle electrode the operation is much more exact. By the latter means I have removed a carcinoma (proved by a pathologic examination by Dr. F. E. Sondern) of the male breast. Radium and roentgen ray were employed before and after the operation. There has been no recurrence up to the present time, three years after the operation. As the needle is moved from one part of the tumor to another, the contact with the tissues is broken, and there passes a short powerful electric arc between the needle and the tissues.

My previous invention was given for the free use of the medical profession when I presented it at the annual convention of the American Electrotherapeutic Association in New York in September, 1905. It consisted

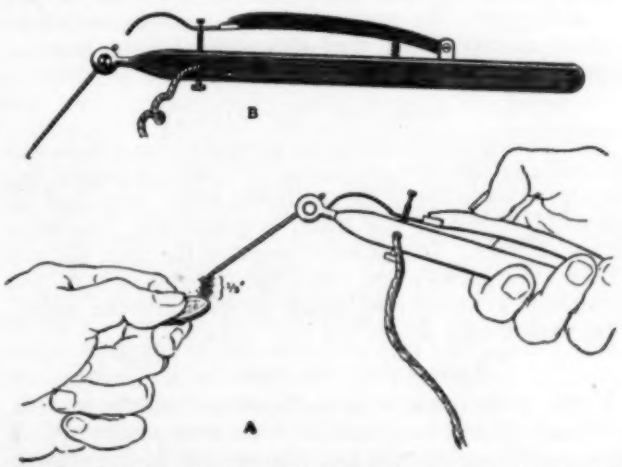


Fig. 1.—*A*, testing the strength of the high frequency spark; *B*, needle and handle for applying high frequency spark.

in the monopolar application of the high frequency current from a needle electrode held in a handle so constructed that, although the generator was in operation and connected with the handle by a wire, the uncharged needle could be applied to the skin and then by pressure on a part of the handle the current could be applied to the needle (fig. 1 *B*). Such a handle has been a common article of commerce ever since, without any profit to me.

My present invention is also offered for the free use of the profession. The necessity for it lay in the pain caused by the concentration of the high frequency current at a single point, either by spark or by direct contact. A good way to become convinced of this fact is for the operator to apply this treatment to a roentgen-ray keratosis on his own hand. He simply cannot stand it long enough to destroy the growth. Of course, a

hypodermic of cocaine or of procaine may be given, but in many regions where warts, moles and epitheliomas occur the prick of a hypodermic needle is extremely painful; and there is danger of infection or of metastasis. Whereas we have always known the toxic properties of cocaine, it has recently transpired that procaine also has certain dangers. If one has ever had any sensitive part

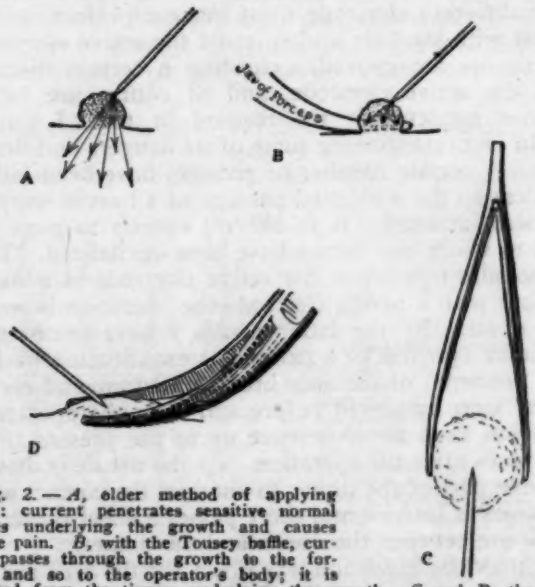


Fig. 2.—*A*, older method of applying spark: current penetrates sensitive normal tissues underlying the growth and causes severe pain. *B*, with the Tousey baffle, current passes through the growth to the forceps and so to the operator's body; it is diverted from the tissues underlying the growth. *C* and *D*, the baffle employed in the painless electrodesiccation of flat growths such as nevi and moles.

frozen with ethyl chloride, he knows how painful that is. Altogether, the application is so simple and easy without an anesthetic that it seemed a pity that no means existed to make it painless.

CAUSE OF THE PAIN

Many benign and malignant growths, for which this treatment is suitable, are insensitive; and yet when the operator tries to apply the treatment to his own hand he abandons it before the wart, for example, has been visibly affected. It seemed to me that the pain did not arise in the growth but from the transmission of the concentrated current and heat generation into the underlying tissues (fig. 2 *A*).

PREVENTION OF THE PAIN

If this is the cause, it seemed easy to limit the current to the part closely in contact with the electrode by applying a metallic conductor to a nearby part of the growth (fig. 2 *B*, *C*, *D*) or even to its pedicle if it is pedunculated or can be pinched up into such a shape. The current then passes from the needle electrode through the neighboring part of the growth to the metal conductor and so to the ground or to the operator's body.

The simplest way is for the operator, an assistant or the patient to hold a pair of thin, curved forceps which grasp the pedicle or which embrace a small part of the growth if it is a flat one. No conducting wire need be attached to the forceps. The needle point may make contact with the growth (fig. 3 *A*), or the sparks (fig. 3 *B*) may pass from it to parts of the growth embraced by the forceps or to the forceps themselves without pain or shock to the patient.

Aside from the absence of pain, the ability to proceed deliberately to destroy just the right amount of tissue is a great advantage. As fast as the tissue is killed, it becomes insensitive; and the device completely protects vital portions from the current.

My first four cases were treated, March 13, 1925, the day after I had made the invention. All were treated without an anesthetic.

REPORT OF CASES

CASE 1.—Mrs. C., a physician's wife, with many moles and warts, had the treatment applied to a warty mole on the upper lip and to a soft black vascular looking mole on the side of the neck. She laughed and joked during the application. A momentary application without the forceps to divert the current from the deep tissue produced a pain.

CASE 2.—Miss E. T., the sister of a physician, had a small, hard, black pedunculated mole near the umbilicus treated in the same way. She said that while she could smell the smoke from the mole under destruction, she felt no pain. As a matter of fact the mole, pedicle and all, came away in the forceps without her knowledge.

The same patient has always had numerous small warts about the neck which the dermatologist has not been able to get rid of. One after another, three of these were pinched up in the forceps, and sufficient current and sparks from the needle point were applied to destroy them. There was no pain, and the patient held perfectly still. An experimental application without the forceps to divert the current from the deep tissues caused her to jump with pain. Evidently in her case the older method would have been impracticable without some anesthetic.

CASE 3.—Mrs. H., aged 80, had marked diabetes and a weak heart. She had very nearly died during an attempt at removal by an operation under procaine at the hands of the late Dr. Fordyce. This was for an epithelioma which I am now treating with radium. She had a flapping black mole near the outer canthus of the left eye, and she, too, laughed and joked while it was being destroyed.

CASE 4.—My own hands presented numerous roentgen-ray keratoses. These were dry and insensitive but hurt terribly with the ordinary electrodesiccation. I had the office nurse apply my method to several of them. They would even burst into flame without pain, and the destruction could be carried just as deep as we thought desirable.

CASE 5.—Miss S. had a very extensive black hairy mole, like elephant skin, on her back. This was removed without a local anesthetic but at two or three treatments. By applying the needle nearest the skin and the baffle to the more central part of the growth but close to the needle, there was very little pain; nothing like the excruciating pain without the baffle.

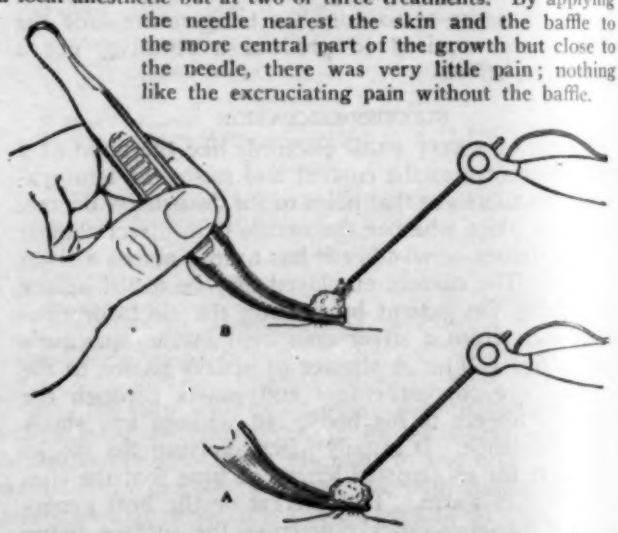


Fig. 3.—Current applied as a spark or by direct contact. Tousey baffle prevents current reaching sensitive tissues underlying the growth.

COMMENT

Many other cases convince me of the saving in suffering accomplished by this device. I first announced it at a meeting of the trustees of the American Electrotherapeutic Association, Oct. 16, 1925, and first publicly described it at a meeting of the New England Association for Physical Therapy, Boston, October 27. The

drawings accompanying this article were made by Mr. Bosse, March 18, 1925.

The method is applicable to cavity work; for instance, for tonsils. The diverting conductor may consist of forceps or may terminate in a simple loop, like a blunt uterine curet. The shaft of the active electrode must be sufficiently insulated not to transmit a current to the patient or to the shaft of the diverting conductor.

The surgical instrument companies have my consent to make an electrode that will combine the usual needle point electrode (straight or curved and charged with the high frequency current when the handle is pressed) with my diverting conductor insulated from the other and grounded either by a wire or by being held in the hand that holds the entire instrument. The electrode and the diverting conductor may be in a fixed relation, such as having the needle point at the middle of the loop, or they may preferably be movable so that it could project a desired distance through the loop. With the latter arrangement the needle could carry the current to deeper parts, from which it would pass back to the loop, making contact at the surface.

When there is a distinct pedicle, the simplest but the least reliable way is to grasp the growth by its free extremity, with the forceps (fig. 4), and apply the needle first to the pedicle and later to all parts of the growth. Sometimes the patient does not know when the growth comes off. The better way is to grasp the pedicle and apply the current to the distal part (fig. 3).

A baffle in a furnace directs the heat so as to prevent it from going up the chimney or from impinging in too great concentration on any part of the boiler.

Fig. 4.—Simplest but least reliable use of the baffle: Forceps hold a pedunculated tumor by its apex while the spark is applied to the pedicle; *A*, forceps; *B*, diathermy needle.

In bipolar electrocoagulation by the method here described, the needle electrode is connected with one terminal of the d'Arsonval high frequency apparatus, and the baffle is connected with the other pole. They are applied to different parts of the growth to be destroyed, in the same way as are the monopolar needle and the baffle.

The clamp and electrode method with bipolar electrocoagulation is not equivalent to my method. At the first glance there is a marked resemblance, and it seems as if a metal clamp holding a hemorrhoid would act in the same way as my diverting conductor. We have all witnessed the suffering of a patient with hemorrhoids in spite of copious use of procaine under that method of treatment. With the bipolar method, the current is applied to an indifferent part of the patient by an electrode of many square inches, and reaches a stage of extreme concentration in the deep tissues just under the active electrode. Conduction by the forceps, if anything, adds to the current coming from the body of the patient up through the underlying tissues to the surface to which the active electrode is applied. From the nature of electricity, only a small amount of the current from the active electrode is diverted by the clamp compared with the part that meets the reverse current in the deep tissues.

ADVANTAGES OF THE METHOD

1. In superficial conditions, the method is an improvement on the ordinary electrodesiccation, because it is painless, requires no anesthetic, and, as the patient is quiescent, the procedure may be careful and just the desired amount of tissue destroyed. It is preferable to the bipolar method or electrocoagulation, because the latter is very painful and the extent to which deeper tissues are devitalized, even fascia, periosteum or bone, is always uncertain.

2. In deeper conditions, it has the same advantage as in the superficial and renders local anesthesia really effective.

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PREPARATION OF GENTIAN VIOLET SOLUTIONS FOR INTRAVENOUS INJECTION *

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The uniformly favorable results obtained by Young and Hill [1] in the treatment of acute septicemia by the use of dyes have attracted the attention of clinicians and have led to a more extensive use of dyes in the treatment of septicemia and also in local infection. The results obtained with the dyes are not uniformly encouraging; in fact, unfavorable results are being reported with sufficient frequency to check the development of dye therapy. It may be advisable, at this time, to call a halt to the indiscriminate use of dyes until the treatment has been standardized. However, the case against the dyes is not so much that they contribute to the course of the infection as that they fail to check it in an unknown percentage of cases. Toxic results occasionally follow the intravenous injection of dyes, particularly mercurochrome-220 soluble.[2] It is evident that much experimental work, both in the preparation and in the application of dye solutions to intravenous therapy, must be done before we can hope to have an adequate knowledge of their value and limitations. It should be determined why some experimenters obtain uniformly favorable results and others obtain uniformly unfavorable results.[3] The explanation should serve as a basis for standardizing and improving dye therapy. In the present paper we describe experiments designed to determine the best method of preparing gentian violet solutions for intravenous injection. The results obtained may, to some extent, explain the divergent results obtained by different clinicians in the application of dye therapy to the treatment of septicemias.

Certain factors affecting the value of dye therapy may be subject to control, while others are not. If the differences in results obtained are due to the selection, preparation and administration of the dye solution we have the opportunity, by determining the best procedure, to reduce the number of unsatisfactory results. If the divergent results obtained are due to variations in the bacteria and the host, we have less chance of increasing the value of dye therapy.

The factors that must be taken into consideration in the preparation of dye solutions for intravenous

* From the Bacteriological Laboratories, State College of Washington.
* Aided by a grant from the Committee on Scientific Research of the American Medical Association.

1. Young, H. H., and Hill, Justina H.: Treatment of Septicemia and Local Infections by Mercurochrome-220 Soluble and by Gentian Violet, J. A. M. A. **82**: 669 (March 1) 1924.
2. Reed, A. C., and Lum, D. D.: Toxic Results of Dye Treatment in Septicemia, J. A. M. A. **83**: 1681 (Nov. 22) 1924.
3. Brill, I. C., and Myers, H. B.: Mercurochrome-220 Soluble and Gentian Violet, J. A. M. A. **84**: 879 (March 21) 1925.

injection are: toxicity of the dye for body cells; bactericidal action in the presence of body fluids, particularly blood; the reaction of the solution; osmotic pressure; stability of the solution, and solubility of the dye in the solvent. The experiments here described deal with certain of these factors, and the results obtained serve as a basis for the recommendation of a definite procedure in the preparation of gentian violet solutions for intravenous injection.

TABLE 1.—*Results of Experiments to Determine the p_H of Gentian Violet Solutions When Prepared with Various Solvents*

Solvent	p_H of Solvent	p_H After Addition of Dye	p_H After Standing Three Days
Tap water	7.6	5.78	5.95
Distilled water	6.7	5.04	4.97
Physiologic sodium chloride solution	7.3	5.31	4.85
3 per cent sodium bicarbonate	8.6	8.45	8.57
Locke's solution	8.1	6.44	5.82
Buffered distilled water	6.8	6.49	6.37

EXPERIMENTS

The reaction or p_H of a solution for intravenous injection should be near that of the blood. The blood in health varies little from p_H 7.4. In disease, the range varies from p_H 7 to p_H 7.8. Death quickly follows a variation beyond either of these extremes. In septicemia there is usually, if not always, a decrease in alkalinity and in the alkali reserve of the blood. It is obvious that under such conditions the injection of an acid solution may prove detrimental.

The solution to be injected might be more beneficial if made alkaline, not only because it would increase the alkalinity of the blood but also because the bactericidal action of gentian violet increases with an increase in alkalinity. In view of these facts, the p_H of dye solutions assumes considerable importance. The danger attending the injection of solutions without first controlling the p_H has been emphasized by Williams and Swett.[4] Mellon, Slagle and Acree[5] describe a method of controlling the p_H of solutions by the use of buffers.

EXPERIMENT 1.—*To determine the p_H of gentian violet solutions when prepared with various solvents.*

A 1 per cent solution of gentian violet was prepared in tap water, Locke's solution, physiologic sodium chloride solution, a 3 per cent sodium bicarbonate solution, buffered distilled water and distilled water.[6] The buffered distilled water was prepared by adding 0.300 Gm. of potassium dihydrogen phosphate and 0.387 Gm. of dipotassium hydrogen phosphate to 100 cc. of distilled water. The dye was added to the solvents, which were then warmed over a bunsen burner, shaken for thirty minutes and allowed to cool to room temperature. The solutions containing sodium bicarbonate received less exposure to heat, to avoid the formation of carbonates. The heating was for the purpose of hastening and increasing the amount of dye going into solution. Care was taken not to heat sufficiently to affect any of the salts in solution. The warming approximated that usually resorted to in preparing solutions for intravenous injection. The dye solutions were cooled to room temperature and filtered and the p_H determined.[7]

Table 1 contains the p_H of each solvent before the dye was added, after the dye was added and after the solution had stood for three days. In all cases the addition of the dye and heat caused an increase in acidity. The change is quite marked except with the sodium bicarbonate solution and the buffered distilled water. Most of the solutions became more acid on standing at room temperature. The sodium bicarbonate dye solution is shown as being alkaline. This solution had stood two or three hours before being tested. It is questionable whether such a dye solution is alkaline when prepared.

It has been the practice to prepare gentian violet solution by adding the dye to either distilled water or tap water. Distilled water, unless freshly prepared, is acid. The acidity increases on standing, and such water may attain a reaction of p_H 5.05. Tap water is usually alkaline and will vary with the locality. Sterilizing by heat usually alters the p_H. The application of heat may make the solution more acid or alkaline, depending on the nature of the solution and the amount of heat applied.

Tap water should, on account of the reaction, prove to be a more desirable solvent for dyes than distilled water. Such solutions should be used freshly prepared, as the dye solution is more likely to break down if made with tap water, owing to the presence of salts.

EXPERIMENT 2.—*To determine the comparative solubility of gentian violet in various solvents.*

Dye solutions were prepared as in experiment 1. The heating to which the solutions were subjected apparently had little effect on the amount of dye going into solution. To determine the percentage of dye going into solution on the addition of 1 Gm. of dye to 100 cc. of the solvent, the solutions, after becoming cooled to room temperature, were filtered through filter paper. The weight of the residual matter remaining in the original container and on the filter paper and funnel was determined. From this was calculated the amount of dye going into solution.

This method does not determine accurately the amount of dye going into solution. As the dye goes into solution in some of the solvents, the salts present precipitate out. With Locke's solution the residual matter weighed more than 1 Gm.; i. e., more than the weight of the dye added. Some of the dye went into solution, as indicated by the color and bactericidal action. As determined by the colorimetric method, from about 0.1 to 0.2 per cent of the dye was taken up by the Locke's solution.

While this method does not, with the exception of the distilled water, indicate the exact amount of dye going into solution in the solvents, it does indicate that a certain amount at least has gone into solution. For instance, in the case of the sodium bicarbonate solution we know that 0.752 of the dye, and possibly more, went into solution. However, other factors than the solubility should prove to be of greater value in determining the best method of preparing dye solutions.

TABLE 2.—*Results of Experiment to Determine the Amount of Gentian Violet Going Into Solution in Various Solvents*

Solvent	Estimated Percentage of Dye in Solution
Distilled water	0.944
Buffered distilled water	0.784+
3 per cent sodium bicarbonate	0.752+
Physiologic sodium chloride solution	0.39+
Locke's solution	0.15

The results of experiment 2 are given in table 2. Apparently, Locke's solution and the sodium chloride solution are not satisfactory as solvents for gentian violet. This is suggested by experiment 2 and confirmed by other experiments.

4. Williams, J. R., and Swett, Madeline: Hydrogen Ion Concentration Studies, J. A. M. A. **78**: 1024 (April 8) 1922.
5. Mellon, R. R.; Slagle, E. A., and Acree, S. F.: The Practical Application of "Buffers," J. A. M. A. **78**: 1026 (April 8) 1922.
6. Gentian violet (medicinal), a National Aniline and Chemical Company product, was used in all our experiments.
7. The p_H of the dye solutions was made with a potentiometer by J. F. St. John, experiment station chemist.

EXPERIMENT 3.—*To determine the stability of gentian violet solutions prepared with various solvents.*

Gentian violet solutions were prepared as in experiment 1. After filtering, the solutions were kept at room temperature in indirect sunlight and examined daily. The examination consisted of testing the staining power on filter paper and looking for precipitates.

The results obtained are given in table 3.

All the dye solutions with the exception of those made with distilled water, tap water and buffered distilled water broke down rapidly and apparently lost much, if not all, of their value as disinfectants the first day. If such solutions are to be used, they should be injected immediately after preparation. The dye solutions made with distilled water, tap water and buffered distilled water remained without visible change for several days. A gentian violet solution made in slightly acid distilled water and in a clean bottle has been on our shelves for a year with no apparent loss in staining power or bactericidal action. It has been opened frequently and exposed to ordinary room lighting. What effect age has had on the toxicity of the solution for the body is unknown to us. A dye solution that stains intensely and has no precipitates may be considered as being unaltered. With decomposition there is a loss of staining power and flocculation or precipitation. There may be some precipitation and the solution will still be serviceable, but if the staining power is reduced or lost the solution should be discarded. A serviceable solution should stain filter paper intensely and uniformly.

TABLE 3.—*Results of Experiment to Determine the Stability of Gentian Violet Solutions when Prepared with Various Solvents*

Solvent	p_H of Solvent	p_H Dye Solution	Days 1	2	3
Distilled water.....	6.95	5.19	No change	No change	No change
Buffered distilled water	6.8	6.12	No change	No change	No change
Tap water.....	7.7	6.00	No change	No change	No change
3 per cent sodium bicarbonate	9.6	7.35	Almost total loss of staining power with much precipitation	Completely decomposed with loss of staining power	.....
Physiologic sodium chloride solution	7.5	5.31	Little staining power and much precipitation	Completely decomposed with loss of staining power	.....
Locke's solution....	8.2	6.44	Reduction of staining power and some precipitation	Further decomposed	Completely decomposed with loss of staining power

The gentian violet solution made with tap water showed a slight precipitation on the fourth day. The change was not sufficient to destroy the value of the solution as a disinfectant. Since tap water varies in different localities as regards the salts in solution, it is advisable to use such solutions freshly prepared.

It is evident from these experiments that gentian violet solutions, if they are to be kept some time, should be free of sodium if not of other salts. However, this does not mean that sodium salts do not have a place in dye therapy. It has been shown that the staining power and bactericidal action of most dyes is greater in an alkaline solution.[8] Also, since the alkalinity of the blood is reduced during septicemia, the use of sodium bicarbonate is indicated. The one objection to the use of sodium bicarbonate is that it causes the dye solution to break down rapidly.

8. Burke, Victor: Notes on the Gram Stain, with Description of a New Method, J. Bacteriol. **7**: 159 (March) 1922. Burke, Victor; and Grieve, Irene: Value of Alkali in Dye Therapy, Am. J. M. Sc. **168**: 98 (July) 1924.

EXPERIMENT 4.—*To determine the comparative bactericidal action of gentian violet in various solvents.*

Fresh dye solutions were prepared as in experiment 1. A tap water solution was not prepared because such water varies greatly with the locality. To 5 cc. of each solution was added a 0.1 cc. suspension of a twenty-four hour culture of *Staphylococcus albus*. At intervals up to thirty minutes a loop of the dye organism suspension was plated out by the usual method, two plates being used. Not enough dye reached the second plate to inhibit growth. The results are given in table 4.

The dye solutions made with distilled water, 3 per cent sodium bicarbonate, and buffered distilled water killed the organisms immediately. The organisms resisted the dye in Locke's solution for ten minutes and in physiologic sodium chloride solution for thirty minutes.

The experiment was repeated, a 1:1,000 gentian violet solution in distilled water, 3 per cent sodium bicarbonate solution and buffered distilled water being used. The organisms were killed immediately by the dye in buffered distilled water, in less than three minutes in the sodium bicarbonate solution and in less than ten minutes in the distilled water.

It is evident that Locke's solution and physiologic sodium chloride solution should not be used as solvents in preparing gentian violet solutions.

Experiment 4 was repeated, except that 1 per cent dye solutions made with distilled water and buffered distilled water were used thirty days after being prepared. The organisms were killed immediately in both solutions. Apparently these solutions lost little if any of their bactericidal action on standing thirty days. The sodium bicarbonate solution breaks down in a few hours with a loss of the bactericidal action.

Two factors, exclusive of decomposition, affect the bactericidal action of the dye solutions, the amount of dye going into solution and the alkalinity.

EXPERIMENT 5.—*To determine the comparative toxicity of gentian violet in various solvents.*

One per cent gentian violet solutions were freshly prepared each day in distilled water, buffered distilled water and 3 per cent sodium bicarbonate solution. It was not considered desirable to use the other solvents listed in experiment 1. They were eliminated for reasons indicated by the preceding experiments.

Rabbits were injected in the marginal ear vein on four successive days with different amounts of the 1 per cent dye solutions. The amount given was calculated from the weight each day. A record was kept of the loss or gain in weight shown each day. The results are given in table 5.

All the animals receiving the dye in the sodium bicarbonate solution lived. Practically all suffered with diarrhea and lost weight following one or more of the injections. The toxic effect is cumulative.

TABLE 4.—*Results of Experiment to Determine the Comparative Bactericidal Action of 1 Per Cent Gentian Violet in Various Solvents for Staphylococcus Albus*

	Minutes 0	3	5	10	20	30
Distilled water.....	—	—	—	—	—	—
3 per cent sodium bicarbonate.....	—	—	—	—	—	—
Buffered distilled water.....	—	—	—	—	—	—
Physiologic sodium chloride solution.....	+*	+	+	+	+	+
Locke's solution.....	+	+	+	+	—	—

* The plus sign indicates growth.

The animals receiving the dye in the buffered solvent showed more severe reactions, greater diarrhea and all but those receiving the 7 mg. per kilogram died following the second or third injection.

The animals receiving the dye in distilled water also showed more severe reactions, and all died except one of those receiving 7 mg. per kilogram of body weight.

The dye in distilled water appears slightly more toxic than in a buffered solution. Possibly this is due to the greater

acidity. The sodium bicarbonate solution was the least toxic. It was more alkaline than the other solutions. Two rabbits were given 20 mg. per kilogram of body weight of the dye in sodium bicarbonate solution. One died in a few minutes after receiving the first injection. The other rabbit resisted four injections. Of forty-two rabbits injected, only two others died immediately after an injection and these received the dye in distilled water. This work was done on normal animals.

TABLE 5.—*Results of Experiment to Determine the Comparative Toxicity of Gentian Violet in Various Solvents*

Rabbit	Solvent	Mg. per Kg.	Doses	Changes in Weight*			Results
1	3% sodium bicarbonate	7	4	+ 46	—107	+65	Lived
2	3% sodium bicarbonate	7	4	+282	— 62	—15	Lived
3	3% sodium bicarbonate	11	4	+ 5	— 6	+40	Lived
4	3% sodium bicarbonate	11	4	— 15	+ 50		Lived
5	3% sodium bicarbonate	15	4	+ 6	+ 54	—65	Lived
6	3% sodium bicarbonate	15	4	+ 25	+115	—90	Lived
7	Buffered solvent.....	7	4	+ 49	— 7	—28	Lived
8	Buffered solvent.....	7	4	+ 45	+ 20	—60	Lived
9	Buffered solvent.....	11	3	+ 79	—320		Died after 3d injection
10	Buffered solvent.....	11	3	— 15	—135		Died after 3d injection
11	Buffered solvent.....	15	2	— 35			Died after 2d injection
12	Buffered solvent.....	15	3	— 60	—210		Died after 3d injection
13	Distilled water.....	7	4	— 25	— 20	—15	Lived
14	Distilled water.....	7	4	— 27	— 13	— 8	Died
15	Distilled water.....	11	4	— 21	+ 5		Died
16	Distilled water.....	11	4	— 10	+ 10	—95	Died
17	Distilled water.....	15	4	— 33	— 80	—75	Died
18	Distilled water.....	15	2	— 43			Died in few Minutes after 2d injection

* The plus sign indicates an increase in weight; the minus sign a loss in weight.

Greater differences might have developed if the injections had been made in animals suffering from septicemia, in which there is a reduction in the alkalinity of the blood.

The experiment was repeated with comparable results.

EXPERIMENT 6.—*To determine the bactericidal action of blood following the intravenous injection of gentian violet.*

A rabbit received 11 mg. per kilogram of a 1 per cent gentian violet solution prepared with buffered distilled water. Ten minutes later, blood was drawn and defibrinated by shaking with beads. To 2.5 cc. of defibrinated blood was added 0.25 cc. of a suspension of *Staphylococcus albus*. The blood-organism suspension was plated out immediately, and at six and twenty-four hours. The suspension was kept in the incubator. The loop method of plating out was used, the first tube receiving a loop of the blood-organism suspension and the second tube a loop from the first tube. Saline solution and normal blood were used as controls. The plates were incubated, and counts per microscopic field and per plate were made. The results are given in table 6. The experiment demonstrates a reduction in number of viable bacteria in the blood dye mixture at six hours and an increase at twenty-four hours. The same results were obtained with normal blood. When a saline solution is used, there is a further reduction at twenty-four hours. The death rate is higher in the blood at six hours than in the saline solution, but it is no higher in the blood-dye mixture than in the dye-free blood. The increase in the numbers of bacteria following the decrease in numbers may be due either to a loss in the bactericidal action of the blood, if such exists, or to an increased tolerance for the blood on the part of the organisms. The experiment was repeated a number of times with comparable results.

It is evident that the experiment fails to indicate an increase in the bactericidal or bacteriostatic properties of rabbit blood following the intravenous injection of 11 mg. per kilogram of body weight of gentian violet. The experiment was modified to the extent that the blood was drawn one and one-half hours after the injection of the dye. The results obtained were similar to those obtained with blood drawn immediately after the injection of the dye.

EXPERIMENT 7.—*To determine the bacteriostatic action of blood following the intravenous injection of gentian violet.*

Rabbits were injected with a gentian violet solution as in experiment 6. Ten minutes and one and one-half hours later, blood was drawn and added to agar having a reaction of p_H 7.4 in the proportion of 40 drops to 10 cc. of melted agar. This was poured into a petri dish in such a manner that it was restricted to half the plate. Blood-free agar was poured into the other half of the plate. Strokes of *Staphylococcus albus* and *Bacterium coli* were made to cross both the blood agar and the blood free agar. The experiment was made seven times.

When drawn within ten minutes of the injection of the dye, the blood inhibited the growth of *Staphylococcus albus* in five of the seven times the experiment was made. The inhibition was very definite, as the organism grew vigorously along the stroke up to the edge of the blood agar and ceased abruptly at the point at which the blood agar began. That the organisms were inhibited rather than killed was shown by drawing a loop along the stroke on the blood agar and then stroking the surface of a fresh agar slant. Vigorous growth was obtained. When drawn one and one-half hours after the dye was injected, the blood showed no bacteriostatic action, the organisms growing as vigorously on the blood agar, as on the blood-free agar. These plates served as controls. In no case was *Bacterium coli* inhibited.

Experiment 7 demonstrates that, for a few minutes following the intravenous injection of 11 mg. per kilogram of body weight of 1 per cent gentian violet in a buffered solution, the blood of a rabbit may be bacteriostatic for *Staphylococcus albus* but not for *Bacterium coli*. The experiment was repeated three times with acriflavine and no bacteriostatic action was noted.[9] However, since the gentian violet injected inhibited bacterial growth, it is possible that the acriflavine makes the blood a somewhat less favorable medium for the growth of bacteria even though it does not inhibit growth. It is evident that in many cases of septicemia any slight aid may turn the tide in favor of the patient. Since acriflavine is a powerful disinfectant and passes through the kidney unaltered, its presence in the blood stream may check bacterial multiplication. Clinical reports indicate that it does.

TABLE 6.—*Results of Experiment to Determine Bactericidal Action of Blood Following the Intravenous Injection of Gentian Violet*

Time of Exposure Hours	Material	Plate 1 Colonies per Microscopic Field	Plate 2 Colonies per Plate
0	Blood-dye.....	27	60
6	Blood-dye.....	12	34
24	Blood-dye.....	27	164
0	Saline solution.....	29	81
6	Saline solution.....	21	64
24	Saline solution.....	6	14
0	Normal blood.....	23	..
6	Normal blood.....	10	..
24	Normal blood.....	32	..

Experiment 7 confirms the pioneer work of Churchman and Herz[10] on gentian violet.

Brill and Myers[3] report on experimental studies of the bactericidal action of mercurochrome-220 soluble and gentian violet in mediums enriched with human blood for cultures of *Bacterium coli-communior*,

9. Neutral acriflavine, manufactured by the Abbott Laboratories, was used.

10. Churchman, J. W., and Herz, L. F.: The Toxicity of Gentian Violet and Its Fate in the Animal Body, J. Exper. Med. 18: 579, 1913.

Staphylococcus albus and *Streptococcus viridans* isolated from the blood stream of human beings. They used the dyes in 1:10,000 dilutions, the estimated concentration in the blood stream following the injection of 7 mg. per kilogram of body weight. The conditions of their experiments were such as to give qualitative rather than quantitative results. The experiments failed to determine whether the number of organisms remained the same, increased or decreased. They simply determined whether or not all were killed.

While the experimental procedure adopted by Brill and Myers differs markedly from ours, the results obtained by them, considered from a practical standpoint, agree with those obtained by us regarding the bactericidal action of gentian violet in nonlethal concentration in the blood. This is evident when we consider that the dye is rapidly secreted by the kidney, and the organisms in the blood would be exposed to it for only a short time. It should be remembered, however, that the dye may check multiplication of the organisms in the blood stream or injure them even though it does not kill them. If it has either action, it becomes a valuable aid in the treatment of septicemia. That it has some action is evident from the favorable results obtained in the clinical application of this dye and by our experiments on the bacteriostatic action of the blood following the intravenous injection of the dye.

Our results with acriflavine agree with those obtained by Spencer,[11] who failed to detect any increase in the bacteriostatic action of blood following the intravenous injection of this dye.

Meleney and Zau [12] report that the injection of acriflavine into rabbits suffering with hemolytic streptococcus infection actually hastens death. However, they made up the dye solution in saline solution prepared from double distilled water, which is usually acid. The addition of acriflavine increases the acidity. As a result of the septicemia, the rabbits were probably suffering with a reduced alkalinity of the blood. Acid reduces the bactericidal action of acriflavine. It is obvious that the results of Meleney and Zau cannot be accepted as conclusive concerning the value of the dye.

Hill and Colston [13] report an increase in the bacteriostatic action of blood for *Bacterium coli* following the intravenous injection of mercurochrome.

In most instances, investigators reporting results of experimental work with dyes fail to give all the details of their experiments. For this reason it is not feasible to review all the work done with the object of determining why one investigator succeeds in demonstrating an increase in the antibacterial action of blood following the intravenous injection of dye and another fails.

COMMENT

Numerous factors must be taken into consideration in estimating the value of dye therapy in septicemia. One need only review the literature, both experimental and clinical, and note the divergent results obtained and opinions expressed by different experimental workers and clinicians to realize the importance of these factors and the failure to control and utilize them properly. In correctly estimating the value of dye therapy, it is advisable to keep in mind not only the factors that affect the action of the dye on bacteria and on the host but also the combined action of the dye and host on the bacteria. In this connection, it is well to review some of the facts and theories of the chemotherapy of infections in general, as these may serve as a basis for a revaluation of dye therapy. A disinfectant may destroy the parasites in one host and not in another. Certain dyes will destroy trypanosomes in the mouse but not in the rat. Emetine cures amebic dysentery in man but not in kittens. The blood of one host may increase the action of a disinfectant, while that of another host decreases it. An inadequate dose of partially decomposed dye may stimulate bacterial activity. This appears to be true of acriflavine.[14] An inadequate dose may also cause the organisms to develop increased tolerance for the disinfectant, so that subsequent injections, even though increased, may fail to affect the course of the disease. Under such conditions, certain trypanosomes become "arsenic fast." [15] Too large a dose may unfavorably affect the condition of the host to such an extent that a few organisms surviving the antiseptic may cause a relapse. Dyes may have such an effect as a result of either the acidity of the solution or the toxicity of the dye. Both are subject to control. The body of the host may increase or decrease the action of the antiseptic. The bactericidal action of the dyes, with the possible exception of acriflavine, is decreased in blood in vitro. The host appears to be an essential factor in the action of arsphenamine on spirochetes, not by acting on the spirochetes but by altering the arsphenamine. A disinfectant may act, not by destroying the parasites, but by affecting the host. The value of "Bayer 205" in spirochete infections appears to be due to its action on the host rather than on the spirochetes. A disinfectant may be effective against one parasite and not against others. This necessitates identification of the organism and selection of the disinfectant. The action of the dyes varies with the organism.

Experimental work has shown that there is an increased bacteriostatic action of the blood following the intravenous injection of gentian violet and mercurochrome. No bactericidal action has been demonstrated. The dye circulates in the blood stream for only a few minutes. It appears that the host must play a part if the organisms are to be destroyed. Elimination of the parasites from the body apparently depends on the combined action of the disinfectant and the defensive mechanism of the host. The disinfectant in the blood stream does not reach all the organisms in the body in septicemia. The defensive mechanism of the host must destroy those not reached by the disinfectant and possibly take part in the destruction of those reached by the disinfectant. The disinfectant at best is merely an aid. The part played by the disinfectant and the part played by the host should be kept clearly in mind, and a failure on the part of the host should not be attributed to the disinfectant.

Our experiments failed to demonstrate an increase in the bacteriostatic action of the blood, following the injection of acriflavine. At the time our test tube experiments were failing to demonstrate an increase in the bacteriostatic action of the blood in rabbits, we had an opportunity to determine the effect of the intra-

11. Spencer, Harvey: Effects of the Intravenous Injection of Acriflavine, J. Lab. & Clin. Med. **9**: 322 (Feb.) 1924.
12. Meleney, F. L., and Zau, Zung-Dau: Action of Acriflavine on the Blood and Certain Tissues of Rabbits, J. A. M. A. **84**: 337 (Jan. 31) 1925.
13. Hill, J. H., and Colston, J. A. C.: A Note on the Intravenous Administration of Mercurochrome on the Bacteriostatic Action of Blood, Bull. Johns Hopkins Hosp. **34**: 372 (Nov.) 1923.
14. Neufeld, F.; Schiemann, O., and Baumgarten: Abstr. Bacteriol. **5**: 72.
15. Burke, Victor; and Skinner, Horace: Resistance of Bacterial Spores to the Triphenylmethane Dyes, J. Exper. Med. **41**: 471 (April) 1925. Saelhof, C. C.: Acquired Tolerance of Gonococci in Culture to Mercurochrome-220-Soluble, J. A. M. A. **84**: 1267 (April 25) 1925.

venous injection of gentian violet and acriflavine in sheep suffering with anthrax septicemia. The first eight sheep becoming infected with anthrax died within twenty-four hours. Eleven other sheep became infected, and all received intravenous injections of methyl violet or acriflavine. All but one recovered. Unquestionably, more of these animals would have died if the dyes had not been injected.[16]

In view of the facts brought out in the foregoing discussion and of the many favorable reports concerning the dyes as blood antiseptics, we should not be hasty in condemning them, as has been done by some experimenters and clinicians. We should attempt to explain the failures. The experimental work described in the paper suggests that some failures at least are due to improper preparation and application of the dye solutions.

Much experimental work remains to be done before dye therapy can be considered on a sound scientific basis. Clinical reports are of great value as a guide to the research worker, as they indicate to some extent wherein the treatment fails. They should not, however, unless in great number, have much weight in estimating the value of dye therapy. This is particularly true when they are not in agreement, as is the case at the present time. The divergent results obtained simply indicate that certain factors not adequately understood must be determined and controlled or eliminated before an accurate estimate can be made of the value of dyes as blood disinfectants.

SUMMARY AND CONCLUSIONS

1. The value of gentian violet solutions for intravenous injection in septicemia varies with the method of preparing the solution. The toxicity, bactericidal action, stability and hydrogen ion concentration determine the value of the dye solution, and these vary with the solvent.

2. The conflicting results obtained in dye therapy are probably due in part to variations in the dye solutions. Standardizing the technic should reduce the number of unfavorable results.

3. Elimination of bacteria from the blood stream depends on the action of both the dye and the defensive mechanism of the host. The dye checks but does not destroy the bacteria in the blood stream. It has less effect on the organisms in the body outside the blood stream. Variations in the defensive mechanism of the host probably account for some of the failures attributed to dye therapy. The dye is at best only an aid. If not properly applied, it may be valueless or detrimental.

4. The hydrogen ion concentrations of gentian violet solutions prepared with various solvents were determined. The addition of gentian violet to a solvent increases the acidity. The acidity usually increases on standing.

5. The amount of dye going into solution varies with the solvent.

6. Gentian violet solutions should be freshly prepared. The hydrogen ion concentration, bactericidal action and toxicity are subject to change on standing, depending on the solvent.

7. The reaction of gentian violet solutions should be as near the neutral point as possible; the more alkaline the solution, the less the toxicity and the greater the bactericidal action, provided decomposition has not occurred. The nature of the dye prevents the preparation of a stable alkaline solution.

8. Dye solutions should not be sterilized by heat. The dye has sufficient antiseptic power to make sterilization unnecessary. Sterilizing the solvent before the dye is added is unnecessary. Heat affects the hydrogen ion concentration of most solvents.

9. The comparative values of six different solvents for the preparation of gentian violet solutions were determined. Of these, physiologic sodium chloride solution and Locke's solution proved unsatisfactory. The advantages and disadvantages of the other four solvents used are as follows:

Distilled water takes the largest percentage of the dye into solution, and the solution is stable for months. The bactericidal action is satisfactory. Distilled water is usually acid, and the dye solution is comparatively more toxic for rabbits.

Tap water is usually more alkaline, varying with the locality, than distilled water. Our tap water-dye solutions were stable for a number of days. The bactericidal action is satisfactory.

A 3 per cent sodium bicarbonate-dye solution proved to be more alkaline and decidedly less toxic than the other dye solutions. The bactericidal action is satisfactory. This dye solution decomposes rapidly and should be freshly prepared and injected immediately. The sodium bicarbonate should be added after the dye is in solution.

A buffered distilled water solution (0.300 Gm. of potassium dihydrogen phosphate and 0.387 Gm. of dipotassium hydrogen phosphate to 100 cc. of distilled water) is a very satisfactory solvent for gentian violet. The hydrogen ion concentration is near neutrality, the bactericidal action is satisfactory, and the dye solution is comparatively stable. This dye solution is more toxic than the sodium bicarbonate dye solution, and less toxic than the distilled water dye solution.

The choice of a solvent for gentian violet lies between the sodium bicarbonate and the buffered solvents.

10. The toxic effect of gentian violet injections is cumulative. The maximum dose should not be repeated too frequently.

11. The maximum dose will vary with the solvent.

12. There is no increase in the bactericidal action of rabbit blood for *Staphylococcus albus* following the intravenous injection of 11 mg. per kilogram of a gentian violet solution prepared with buffered distilled water.

13. There is an increase in the bacteriostatic action of rabbit's blood for *Staphylococcus albus* following the intravenous injection of 11 mg. per kilogram of a gentian violet solution prepared with buffered distilled water. No increase in the bacteriostatic action for *Bacterium coli* was demonstrated.

Numerous factors must be taken into consideration in estimating the value of dye therapy in septicemia.

16. Burke, Victor; and Rodier, E. A.: Value of Dyes in the Treatment of Anthrax Septicemia, J. Am. Vet. M. A. 68: 232, 1925.

Food and Nutrition.—Health, energy and well being depend very greatly on the quality of the food served and on the quantity consumed. Who knows how many nervous breakdowns, how many unhappy homes, are the result of ill prepared, poorly balanced food which helped to lower the vitality? Who can tell how many illnesses had their beginning in inferior cooking? How many worth while plans were never perfected, because their foundation could not be built securely by a body and mind starved on imitation foods? These are memorials which are not placed in archives.—Wood, T. D., and Dansdill, T.: By-Ways to Health, 1925, p. 9.

SINUS RESPIRATORY ARRHYTHMIA IN CHILDREN WITH RHEUMATIC HEART DISEASE *

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The normal child's heart shows sinus respiratory arrhythmia. The absence of this arrhythmia is looked on as evidence of heart injury, and its presence is considered by some investigators [1] as sufficient proof that the child's heart is not damaged.

My observations on children with rheumatic heart disease do not confirm the opinion that the presence of sinus respiratory arrhythmia is evidence of a normal heart. In my experience, this form of arrhythmia is absent only in the most serious cases of heart disease.

To illustrate my experiences, I analyzed the findings in a small unselected group of 100 cases, all of them showing rheumatic heart disease with valvular injury and severe enough to be bed cases in the hospital. Eighty of the 100 cases showed sinus respiratory arrhythmia evident enough to be easily detected on simple auscultation.

However, as indicated in the accompanying table showing the greater incidence of enlargement, rapid pulse, activity, decompensation while in bed, and extent of injury, the subgroup of twenty patients without arrhythmia presented far more severe forms of the disease.

Comparison of Findings in Rheumatic Heart Disease in Children With and Without Sinus Respiratory Arrhythmia, Showing Greater Incidence of Injury in Former

	In the 80 Cases Showing Arrhythmia	In the 20 Cases Not Showing Arrhythmia
Enlargement	59 per cent	100 per cent
Activity	50 per cent	84 per cent
Pulse rate over 100	36 per cent	80 per cent
Decompensation	14 per cent	70 per cent
More than simple mitral damage	15 per cent	65 per cent
Cases showing all five of these characteristics	1.25 per cent	50 per cent
Cases showing four of these five characteristics	5 per cent	85 per cent

The greater seriousness of the cases showing no arrhythmia is brought out even better by a comparison of the subsequent course of the disease in the two subgroups. Of the twenty children without arrhythmia, seven died within a year; seven more developed complications or further heart injury or became worse in some way after discharge and had to be readmitted to the hospital; two more were getting worse; only one was doing well, and the other three did not return. Of the eighty children with arrhythmia, I heard of none who died, returned to the hospital, or became worse. No special search was made to follow up either group; the data as it came to us were striking enough.

The prognostic significance of the absence of respiratory arrhythmia was especially impressive in the six children showing no evidence of decompensation while in bed and presenting no evidence of a bad prognosis other than the absence of respiratory arrhythmia. Five of these children, after appearing to show some temporary improvement, eventually presented an actively progressive form of the disease. One of the five, when first seen as an outpatient, did not seem to be in bad enough condition to warrant admitting him as a house patient, but he soon became worse, entered the hospital, and died.

The absence of this arrhythmia in the very serious cases is difficult to explain. Active heart disease—rheumatic, or subacute bacterial—or congestive failure may cause more or less constant sympathetic stimulation which prevents sinus arrhythmia. At any rate, while the absence of sinus respiratory arrhythmia in children does not distinguish those having heart disease from those not having it, it is evident that it indicates a bad prognosis.

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* From the House of the Good Samaritan.

1. Mackenzie, James: Diseases of the Heart, London, 1918; Principles of Diagnosis and Treatment in Heart Affections, London, 1918.

THE ASSOCIATION BETWEEN DIABETES MELLITUS AND CHRONIC INFECTIOUS ARTHRITIS *

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Pemberton [1] noted that patients with chronic arthritis seemed to improve when they were given diets low in carbohydrate, and were made worse by diets high in carbohydrate. From this he concluded that patients with diabetes should be comparatively free from arthritis because of the fact that their disturbed metabolism of sugar demanded prolonged diets low in carbohydrate. In his own experience, and in that of Allen and Joslin, diabetes and arthritis only rarely were associated. This has not, however, been our experience. During the last year at the Mayo Clinic, we have seen 474 patients with diabetes; fifty-one of these (10.8 per cent) who had well defined but, as a rule, comparatively mild diabetes had arthritis. They were all given a diet in which the available glucose did not exceed 140 Gm., and were kept in the hospital under careful supervision for at least two weeks on their first visit to the clinic. During these two weeks they were given instructions with regard to their diets, to which most of them were able to adhere. There is no absolute certainty that the restrictions in diet were adhered to when the patients were at home, but at the time of their yearly or half-yearly reexaminations, there was no indication of serious indiscretion.

Considered solely from the standpoint of the changes of the joints, this group of patients exhibited the usual lesions of chronic arthritis. The coexisting diabetes could not be said to have produced changes peculiarly characteristic. Most of the patients had the so-called hypertrophic arthritis, usually situated in the joints of the spine.

The infection in the joints of these patients was treated by the usual measures, and all foci of infection, including those in the cervix and prostate, were treated surgically or medically. Exercise of the affected joints, baking, massage and diathermy were carried out.

* From the Division of Medicine, Mayo Clinic.

1. Pemberton, Ralph: The Metabolism and Successful Treatment of Chronic Joint Disease: a Preliminary Report, Am. J. M. Sc. **144**: 474-494, 1912; The Metabolism, Prevention and Successful Treatment of Rheumatoid Arthritis: Second Contribution, ibid. **146**: 895-905, 1913; **147**: 265-287 and 423-435, 1914; The Metabolism and Treatment of Rheumatoid Arthritis, Third Paper, ibid. **151**: 351-377, 1916; Fourth Paper, ibid. **153**: 678-692, 1917; The Nature of Arthritis and Rheumatoid Conditions, J. A. M. A. **75**: 1759-1765 (Dec. 25) 1920; The Use of Diet in the Treatment of Chronic Arthritis, Am. J. M. Sc. **161**: 517-525 (April) 1921.

Bertram [2] believes in the beneficial effects of foreign protein reaction in cases of diabetes and chronic arthritis, but we have not felt justified in subjecting diabetic patients to the procedure.

There is no remarkable difference in the response of patients with uncomplicated arthritis treated according to the foregoing measures, which do not include the low carbohydrate diet, and patients who are compelled to eat a diet low in glucose.

SUMMARY

Not infrequently diabetes and arthritis are associated. No noticeable improvement seems to occur in arthritic symptoms in consequence of the low carbohydrate regimen necessary in the presence of diabetes.

ERYSIPELOID AND SWINE ERYSIPELAS IN MAN

A CLINICAL AND BACTERIOLOGIC REVIEW; SWINE ERYSIPELAS IN THE UNITED STATES *

JOSEPH V. KLAUDER, M.D.

PHILADELPHIA

Tilbury Fox [1] was apparently the first to describe what is now generally designated as erysipeloid. In 1873, he briefly described two instances of an eruption clinically conforming with that disease. In the same year Monant Baker [2] under the name of erythema serpens described a number of cases occurring exclusively on the hands of cooks and butchers, and on those handling game and rabbit skins. His description of the eruption was essentially the same that Rosenbach subsequently described.

Rosenbach aptly designated the eruption as erysipeloid (now generally known as erysipeloid of Rosenbach) and published in 1884 [3] and in 1887 [4] the results of his study. He described the eruption as an erysipelas-like affection, frequently encountered in cooks, kitchen workers, butchers and those who handle game and fish, and in shopkeepers who handle cheese or herring, manifesting itself chiefly about the fingers and hands, and characterized by a slowly progressing, sharply defined, slightly elevated, dark violaceous, almost livid red zone which develops around the site of inoculation. The area of redness extends peripherally as the control portion fades away without desquamation. The eruption is accompanied by a sensation of burning, pricking or itching, without constitutional symptoms or involvement of the lymphatics or glands. Spontaneous recovery usually ensues in one, two or three weeks.

From one of his patients who acquired the disease from handling foul cheese, Rosenbach obtained, by taking a culture of an excised portion of the skin, a pure culture of coccus-like bodies, somewhat larger than staphylococci; older cultures underwent mutation and appeared as a closely woven mass of branching fine threads. At this time Rosenbach regarded the organism as *Cladothrix dichotoma,* but from studies conducted some years later he no longer maintained this opinion.[5] With a pure culture of this organism Rosenbach produced on his own arm a typical erysipeloid eruption.

Rosenbach's findings [6] have been confirmed by Felsenthal,[7] who recovered the organism from three out of four patients with erysipeloid. He took cultures from a portion of the skin [8] in liquid gelatin and obtained a coccus larger than the staphylococcus. In older gelatin cultures the organism was seen as threads. Felsenthal noted the resemblance of the organism to that of swine erysipelas. Ohlemann,[9] employing the same technic, likewise recovered the organism from patients with erysipeloid. In addition, he produced typical erysipeloid on his own arm with an old stock culture of the organism originally obtained from a patient with the disease. In a histologic section of the experimentally produced erysipeloid, he demonstrated the organism in the corium.

SALIENT CLINICAL FEATURES OF ERYSIPELOID

From the reports of Rosenbach,[4] Lehnhartz,[10] Tavel,[11] Gilchrist,[12] Lexer,[13] Ohlemann [9] and Reich [14] the following are the salient clinical features of erysipeloid of Rosenbach: The disease is most frequently seen during the period from May to September. Invariably, the infection can be traced to contact (in many cases through a puncture wound) with dead animal matter of divers nature, and in all but six of Gilchrist's 329 cases, to crab bites or other contact with crabs. The incubation period ranges from one to five days. A distinctive feature of the erythema is its purplish red color. The disease is confined almost exclusively to the hands; it rarely progresses above the wrist, and if so, only for a short distance. Only a few instances of the disease occurring in other parts (soles, face and neck) have been observed by Gilchrist, Lexer and Lehnhartz. The surface of the involved parts remains smooth; no papules, vesicles or other lesions appear. The subjective symptoms are sensations of burning, pricking, some itching and pain (which may radiate up the arm). In exceptional cases the latter two symptoms are marked. Lymphangitis and glandular involvement is rare. Suppuration has not been observed in the reported cases. Tavel [15] alone reports in three patients the occurrence of fever and constitutional symptoms, considerable swelling of the involved area with pain, lymphangitis and glandular involvement.

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2. Bertram, Ferdinand: Zur Caseosantherapie des Diabetes, Ztschr. f. d. ges. exper. Med. **43**: 442-448, 1924.

* From the Research Institute of Cutaneous Medicine.

1. Fox, Tilbury: Diseases of the Skin, Ed. 3, London, 1873, p. 108.

2. Baker, W. M.: Erythema Serpens, St. Bartholomew's Hosp. Rep. **9**: 198-211, 1873.

3. Rosenbach, F. J.: Mikroorganismen bei den Wundinfektionskrankheiten des Menschen, 1884.

4. Rosenbach, F. J.: Ueber das Erysipeloid, Verhandl. d. deutsch. Gesellsch. f. Chir. **16**: 75, 1887.

5. To be referred to later under the head, The Organism of Swine Erysipelas, of Erysipeloid and of Mouse Sepsis.

6. In 1885, Cordua (Deutsch. med. Wchnschr. **33**: 576, 1885) under the name of erythema multiforme reported 127 characteristic cases of erysipeloid. From an excised portion of the skin from one of his patients he obtained a pure culture of a coccus, which was larger than the staphylococcus. The organism was in all probability the same one that Rosenbach previously described.

7. Felsenthal, S.: Beitrag zur Aetiologie und Therapie des Erysipels und des Erysipeloids, Arch. f. Kinderh. **16**: 221-236, 1893.

8. To demonstrate the organism from cases of erysipeloid it appears necessary to obtain cultures from an excised portion of the skin. Those who reported negative attempts to recover the organism did not take cultures from the skin. An exception, however, is the report of Reich (Footnote 14).

9. Ohlemann, J.: Beitrag zur Kenntnis des Erysipeloids und dessen Aetiologie, Inaug. Dis. Göttingen, 1904.

10. Lehnhartz: Erysipelas (Rose, Rotlauf) und Erysipeloid, in Nothnagel: Spezielle Pathologie und Therapie **3**, 1899.

11. Tavel: Das Erysipeloid, Deutsch. Ztschr. f. Chir. **61**: 528-544, 1901.

12. Gilchrist, T. C.: Erysipeloid, with a Record of 329 Cases, of Which 323 Were Caused by Crab Bites or Lesions Produced by Crabs, J. Cutan. Dis. **22**: 507-519, 1904.

13. Lexer: Handbuch der allgemeine Chirurgie, 1903 and 1908.

14. Reich, M.: Ueber das Erysipeloid, Wien. klin. Wchnschr. **21**: 352-357, 1908.

15. Some writers point out that the cases of Tavel were not pure types of erysipeloid but, in all probability, were complicated by secondary pyogenic infection. The possibility of the cases being instances of swine erysipelas in man has been suggested.

A relapse of the erythema has not infrequently been observed. The disease disappears spontaneously in from five days to four weeks or longer, without desquamation.

ERYSIPELOID AMONG FISHERMEN

In cooperation with Dr. L. L. Righter of Seaside Park, N. J., I studied a number of cases of erysipeloid occurring on the hands of fishermen engaged in the fishing industry (fish pounds) along the eastern Atlantic seaboard.[16] The disease causes a high morbidity rate and is the principal cause of disability among these men.

Clinically, there is erythema, at first localized to one finger, appearing in the majority of cases at the site of a puncture wound incident to the bite of a fish, or to the prick from the scales or fin of a fish. The erythema progresses, involving the palm or dorsum of the hand. Pain, which is considerable, is a characteristic feature. Lymphangitis and glandular enlargement is frequently present, appearing with or without suppuration. Suppuration is common; it is localized at the site of the puncture wound and is very scanty—one or two drops of pus may be obtained through a deep incision. We observed recurrence of the erythema after apparent recovery; we also noted constitutional symptoms with fever. The disease runs a course of from three to four weeks.

It is to be recalled that these fishermen handle only live fish as they are removed from the nets, and again from the boats into baskets. Apparently, the disease is more likely to result from contact with very slimy fish. In addition to the disease appearing at the site of the aforementioned type of puncture wound, we have noted its appearance in the absence of a history of trauma and the absence of evidence of such. The eruption has also been observed on the skin of the body at the site of trauma inflicted through the soiled fishing clothes of the patient, and also at the site of friction and presence of the soiled clothes as, for example, on the skin of the arm beneath rolled up sleeves.

We are not acquainted with any recorded description of this type of erysipeloid among fishermen, which differs as to the severity of symptoms and the presence of suppuration from that of the aforementioned type of erysipeloid of Rosenbach. As will be shown later, the symptoms of this type of erysipeloid approach those of swine erysipelas in man.

The clinical picture of the disease is not that of cellulitis. It is possible that suppuration may arise from a secondary pyogenic infection. The fact that the disease is so intimately associated with the handling of fish, together with certain distinct clinical features, justifies placing it in the erysipeloid group.

SWINE ERYSIPELAS: ITS OCCURRENCE IN MAN AS AN ERYSIPELOID ERUPTION

Swine erysipelas[17] is an acute septicemic infectious disease of young hogs caused by a fine rod shaped bacterium—*B. erysipelatis-suis* (Fig. 1). The disease occurs everywhere on the European continent and is widely spread in Germany. It causes considerable financial loss.

The disease is manifested in the three following forms: A mild form, urticaria (diamond skin disease), characterized by slight constitutional symptoms and the presence of sharply circumscribed, rounded, quadrangular or rhomboidal spots on the skin, warm to the touch, and dark red or violet; a severe form, erysipelas septicemia, characterized by constitutional symptoms of septicemia and the presence of a diffuse erythema, areas of which may become gangrenous; a chronic form, chronic erysipelas, endocarditis, occurring in animals that have recovered from the acute infection, particularly characterized by polyarthritis and symptoms referable to what is a distinctive pathologic finding, a vegetating type of endocarditis.

Since Hillebrand[18] and Mayer[19] first reported in 1899 the occurrence of swine erysipelas in man, an ever increasing number of cases has been notably reported in the German medical and veterinarian literature.

Swine erysipelas in man has been most frequently observed in veterinarians, accidentally inoculated through a prick of the needle when immunizing swine against the infection with the serum of swine erysipelas and a small quantity of virulent culture. In ninety-seven cases compiled by Ders[20] from 1901 to 1912, sixty-eight patients were inoculated from culture in the aforementioned manner or from handling the culture among laboratory workers; thirty-two cases were traced to infected meat and were observed in butchers, farmers, meat inspectors, cooks and others handling such meat; in the remaining seven cases the source of the infection could not be traced.

In the majority of patients, the disease appears at a site of injury involving the fingers or hands. The incubation period in swine is three days; in man, however, it ranges from one to four days. The symptoms are those of erysipeloid, already enumerated, with the exception that they are much more severe; the swelling is much greater, so that the fingers frequently become mobilized; the itching, burning and pain are considerable, the latter often preventing sleep. Lymphangitis and glandular involvement are frequently present. The disease frequently extends above the wrists, involving the forearms and arms.[21] As evidence of a blood infection, Düttmann[22] records three cases in which the disease first appeared on one hand, and subsequently appeared on the other hand and later on both feet. More recently, Axhausen[23] and Rahm[24] described a characteristic arthritis of the finger joints as a complication of the disease as it is usually manifested. In some of Rahm's cases, the arthritis existed without skin change. Constitutional symptoms and fever are rarely observed. Suppuration is absent. The course of the disease is about four weeks.

The differential diagnosis from erysipeloid is, in some cases, difficult. The following considerations serve to make such diagnosis: the history of handling culture; recent contact with hogs or the flesh of hogs; the severity of the symptoms; the greater incidence of lymphangitis and glandular involvement; the greater likelihood of the disease extending above the wrist.

The organism is obtained by taking cultures (in bouillon) of an excised piece of the involved skin. It

16. A more detailed report of clinical and laboratory studies will be published in collaboration with Dr. L. L. Righter and Dr. M. J. Harkins.

17. Quoted from Hutyra and Marek: Pathology and Therapeutics of the Diseases of Domestic Animals (transl. by Mohler and Eichorn), Chicago **1**: 66.

18. Hillebrand: Uebertragung des Schweinerotlauf auf den Menschen, Ztschr. f. Med.-Beamte, 1899, pp. 544-547.

19. Mayer: Uebertragung des Schweinerotlauf auf den Menschen, Ztschr. f. Med.-Beamte, 1899, pp. 611-612.

20. Ders: Veröffentlichungen aus den Jahresveterinarberichten der beamteten Tierarzte Preussens, 1900 to 1912, quoted from Rahm.

21. In a few cases Rahm noted the presence of vesicles and calls attention to the fact that at times vesicles are a part of the cutaneous picture of the disease in swine.

22. Düttmann, Gerhard: Schweinerotlauf und Erysipeloid, Beitr. z. klin. Chir. **123**: 461-469, 1921.

23. Axhausen, G.: Zur Diagnostik der Fingergelenkserkrankungen, Klin. Wchnschr. **2**: 2197-2198 (Nov. 26) 1923.

24. Rahm, H.: Zur Schweinerotlaufarthritis der Fingergelenke, Klin. Wchnschr. **3**: 224-226 (Feb. 5) 1924.

is interesting to note that Rahm failed to demonstrate the organism in the blood and serum from an incision into the involved skin but demonstrated it by taking cultures of a portion of the skin [18] from the same patient.

In histologic sections Düttmann clearly demonstrated the organism in the corium, in the deep part of the pars reticularis. For this reason, in order to obtain a culture of the organism, he points out the necessity of deeply excising a portion of the skin from which cultures are to be taken. Düttmann records the histologic appearance of the disease, which is not especially characteristic and will therefore not be detailed.

The aforementioned described cases of swine erysipelas occurring in man have been compared to the mild form of the same disease in swine—diamond skin disease. Fatal cases of the acute septicemic form of the disease have been reported occurring in veterinarians accidentally infected with a culture of the organism.[25] The patients presented the clinical picture of sepsis, with bluish red lesions on various parts of the body; in some, arthritic pains and evidence of endocarditis.[26] Prausnitz's [27] case is of interest. In a patient with the clinical picture of sepsis, blood culture disclosed the bacillus of swine erysipelas. The patient succumbed. The source of the infection was undetermined.

The chronic form of the disease as it is seen in swine is apparently very rare in man. Rahm [24] enumerates it as one type of the disease in man, characterized by endocarditis and polyarthritis.

It is interesting to note that the bacillus of swine erysipelas has an affinity for the skin. An oral infection from eating infected meat of swine is apparently very rare, although many opportunities have been doubtless afforded for such infection. Rahm [25] states that in children an oral infection with the bacillus of swine erysipelas has been observed which produces an obstinate intestinal disorder. Again, Lubowski [28] found the organism in large numbers in the stool of an icteric boy who had a mild intestinal catarrh. The organism was pathogenic to mice. The injection of the serum of swine erysipelas protected mice against lethal doses of the organism. Its identity was thus proved.

A specific treatment of swine erysipelas in man consists in the employment of from 1 to 2 c.c. of the serum of swine erysipelas per kilogram of body weight, injected intramuscularly. Following its use there is a rapid subsidence of the symptoms and disappearance of the lesions. A second injection is rarely necessary.

ERYSIPELOID AND SWINE ERYSIPELAS: THE QUESTION OF IDENTITY OF THE TWO DISEASES

It is the consensus of the German observers [29] that erysipeloid and swine erysipelas are identical diseases, that erysipeloid is only a mild form of swine erysipelas. The organisms identified with the two diseases are likewise regarded as identical, differing only as to virulence.

From the typical cases of erysipeloid of Rosenbach, Rahm,[30] Schmidt [31] and Düttmann [22] demonstrated, by taking cultures of an excised portion of the involved skin, an organism indistinguishable from the bacillus of swine erysipelas. Acel [32] took cultures of a portion of the skin from five patients presenting the clinical picture of erysipeloid, in which there was no history of recent contact with swine or the flesh of swine. The organism obtained was at first a gram-positive coccus but later appeared as a gram-positive rod (confirmation of Rosenbach's original finding), which was regarded as the bacillus of swine erysipelas. Agglutination tests with serum from all the patients, conducted separately with cultures of the bacillus of swine erysipelas, yielded positive results.

SWINE ERYSIPELAS IN THE UNITED STATES [33]

According to Dr. John S. Buckley,[34] chief of the Pathologic Division of the Bureau of Animal Industry, United States Department of Agriculture, the existence of swine erysipelas in this country was first demonstrated in 1920, through investigations made in his department. Since that time a considerable number of cases have been found,[35] both acute and chronic. He states that it is not definitely known at present (March, 1925) just what the extent of the disease is in the United States. It is thought, however, that swine erysipelas is not very widespread, confined more or less to sporadic outbreaks occurring in a limited number of animals in different sections.

There are no recorded instances of swine erysipelas in man occurring in this country. However, in view of the existence of the disease, in both the acute and the chronic form, among swine in this country, it is logical to expect its appearance in man.[36]

ORGANISM OF SWINE ERYSIPELAS, OF ERYSIPELOID AND OF MOUSE SEPSIS; QUESTION OF IDENTITY OF THE THREE ORGANISMS

Clinically, infection with the organism of swine erysipelas and of erysipeloid is characterized by progressive inflammation with peculiar reddening. The clinical picture differs only as to severity of the symptoms.

25. Rahm, H.: Der Schweinerotlauf beim Menschen. Beitr. z. klin. Chir. **115**: 664-677, 1919. Gunther, G.: Schweinerotlauf beim Menschen, Wien. klin. Wchnschr. **35**: 1318-1320, 1912.

26. In a fatal case mentioned by Gunther, necropsy findings showed endocarditis and myocardial degeneration.

27. Prausnitz, C.: Bakteriologische Untersuche über Schweinrotlauf Beim Menschen, Zentralbl. f. Bakteriol. **85**: 362-365, 1921.

28. Lubowski, R.: Befund von Schweinerotlaufbazillen im Stuhle eines ikterischen Kindes, Deutsch. med. Wchnschr. **27**: 116, 1901.

29. In addition to references cited, Diemer, T.: Zur Frage des Erysipeloids, Klin. Wchnschr. **2**: 1022-1024 (May 28) 1923 (bibliography).

30. Rahm, H.: Zur Diagnose des Schweinerotlauf, Med. Klin. **18**: 1217-1218 (Sept. 17) 1922.

31. Schmidt, Erich: Der Schweinerotlauf beim Menschen, Beitr. z. klin. Chir. **123**: 471-479, 1921.

32. Acel, D.: Zur Aetiologie des Erysipeloids, Deutsch. med. Wchnschr. **50**: 988 (July 18) 1924.

33. Dr. George Hilton, veterinary director general of Canada, informs me that his department has no official statistics of the disease in swine in Canada.

34. A personal communication to the author.

35. The following references give detailed information relative to the disease in swine in this country:
Creech, G. T.: The Bacillus of Swine Erysipelas Isolated from Urticarial Lesions of Swine in the United States, J. Am. Vet. A. **59**: 131, 1921.
Ward, A. R.: The Etiology of Polyarthritis in Swine, J. Am. Vet. A. **61**: 155, 1921.
Gitner, L. T.: A Fatal Disease of Young Pigs Apparently Caused by the Bacillus of Swine Erysipelas, J. Am. Vet. A. **61**: 540, 1922. This report concerns the finding of bacillus of swine erysipelas in a pig succumbing to the acute septicemic form of the disease.
Parker, J. W., et al.: Porcine Erysipelas, J. Am. Vet. A. **64**: 451, 1924. This report concerns observations as to the occurrence of the disease among swine at one of the large packing houses. In a period of three months, 110 cases based on objective manifestations were tabulated. Out of sixteen cases studied bacteriologically, the organism was demonstrated in ten.

36. In this regard it is interesting to recall the report of Libman and Sacks (A Hitherto Undescribed Form of Valvular and Mural Endocarditis, Arch. Int. Med. **33**: 701-732 [June] 1924) of four patients presenting the clinical picture of an acute febrile infection with polyarthritis and cutaneous manifestations of particular interest. Two of the patients showed an erythematous eruption on the face which resembled acute lupus erythematosis and erythematous lesions elsewhere. In one of these patients there was bluish discoloration of the involved joints. One patient showed erythema and induration of the forearm; later, the skin over certain joints was a peculiar red. Necropsy in all the patients disclosed, among other findings, a verrucose endocarditis of a peculiar type. The thought of acute swine erysipelas in man is doubtless an appropriate one in these cases. However, such infection was excluded by the thorough bacteriologic studies, which were entirely negative.

Human infection with the bacillus of mouse sepsis is unknown. In bacteriologic studies, and in their pathogenic properties, the three organisms strikingly resemble one another. Indeed, much controversy has been waged among German workers as to whether the three organisms are not identical, differing only as to virulence.

Prettner [37] regards mouse sepsis bacillus as an attenuated form of swine erysipelas bacillus, the passage through mice accounting for its decreased virulence in

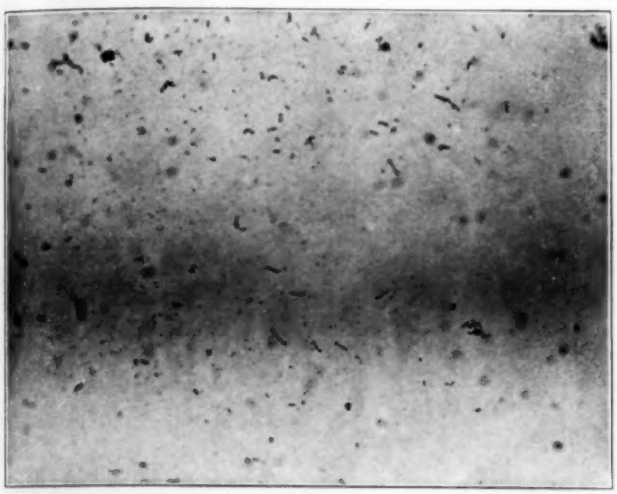

Fig. 1.—The bacillus of swine erysipelas—straight and slightly curved rods. Smear prepared from a bouillon culture stained with carbolfuchsin. Culture obtained from Dr. John S. Buckley, Bureau of Animal Industry (originally obtained from Professor Jensen of Copenhagen). The organism is a slender, straight or slightly curved, nonmotile bacilli, from 1 to 1.5 microns long. It is gram-positive. It is aërobic as well as anaërobic and grows in cultures as long rods or curved threads. It grows best in a gelatin culture at 68 F. On gelatin plates the cultures form whitish, cloudy, very fine flakes with coarse granular centers. In gelatin stab cultures, grayish white cloudy colonies appear from which horizontal radiating branches grow (test tube-brush shape). On agar and on blood serum, very fine, punctiform, dew drop-like colonies appear. The bouillon is made slightly cloudy; later a fine, flaky sediment forms. The culture of bacillus of swine erysipelas studied was nonpathogenic to white mice, mice, rabbits and guinea-pigs (doubtless through continued cultivation), although the organism is highly pathogenic to white mice and to pigeons. According to others, the organism is highly resistant. Drying kills them very gradualiy, as they remain alive when subjected to a temperature of 37 C. for thirty-one days, and to direct sunlight for twelve days. Pieces of meat not over 15 cm. thick require two and one-half hours' boiling for a complete sterilization. Salting and pickling destroys the organisms very slowly; meat and bacon may contain virulent bacilli after lying in pickle for 170 days.

swine. In this regard it is interesting to recall that Pasteur observed that the bacillus of swine erysipelas, when inoculated into rabbits, became less virulent to swine. Indeed, this led to the Pasteur method of immunizing swine against swine erysipelas.

According to Libbertz and Ruppel,[38] erysipeloid cultures behave serologically just like swine erysipelas bacilli; that is, the agglutination titer is identical, and swine erysipelas serum immunizes against and affects therapeutically both infections.

Lorenz [39] regards the two organisms as different from the cultural differences which he observed. Preisz [40] at first took a similar view founded on five morphologic differences that he observed, but later concluded that the organisms are identical, despite morphologic and cultural differences. In Jensen's [41] opinion, there are no basic differences between the two organisms.

In Rosenbach's [42] study, the organisms of swine erysipelas, of mouse sepsis and of erysipeloid exhibited serologic and toxic similarity. He observed cultural and morphologic differences, which for lack of space will not be detailed. The growth of the three organisms, as observed by Rosenbach, was composed of a network of filaments, with chain forms; regular branching and thickening of the fibers, with formation of granules and clear spots, were also observed.

From these morphologic differences Rosenbach concludes that the three organisms are distinct. In view of the aforementioned characteristics he groups them as the erysipelas filaments, or *Erysipelotricheae;* viz., *Erysipelothrix porci, Erysipelothrix erysipeloids* and *Erysipelothrix murisepticus.*

Rickmann,[43] from the examination of a large number of cultures of the bacillus of swine erysipelas obtained from swine dying of the disease, states that the cultural and morphologic differences enumerated by Rosenbach are not maintained when a large number of cultures are studied.

Rickmann noted that swine erysipelas serum has the same agglutination titer against the organism of the three diseases. He believes that the three organisms are identical, but modified in virulence and somewhat in morphology through prolonged passage, respectively, in man, swine and mouse. Concerning a laboratory differentiation of the three organisms, Rickmann does not believe such differentiation possible.

OTHER ERYSIPELAS-LIKE ERUPTIONS, NOT TRUE ERYSIPELOID: REPORT OF CASES

Eruptions are occasionally seen that resemble what is designated as erysipeloid but do not conform in all respects to this disease. The eruptions appearing on the patients whose case histories follow were of this character; they lacked the purplish blue of erysipeloid and, furthermore, in one of the cases, the eruption disappeared with desquamation.

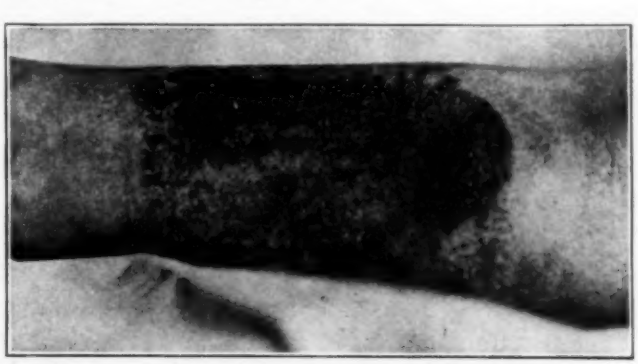

Fig. 2 (Case 1).—An erysipelas-like eruption, not true erysipeloid. The patient was a nurse; the eruption appeared spontaneously while she was nursing a patient with sepsis. The entire forearm was swollen; deep seated pain was a conspicuous symptom; the eruption lacked the purple red of erysipeloid. It was in all probability bacterial in origin.

CASE 1.—*Involvement of both forearms. History.*—A woman, aged 24, prior to the appearance of the eruption, nursed a patient with puerperal sepsis. She could not recall injuring, pricking or traumatizing the skin of the involved area, nor was she handling dead matter of any kind.

37. Prettner: Ueber die Identität des Bacillus Muriscepticus und des Erysipelatis Porci, Berl. tierärztl. Wchnschr., 1901, p. 669; quoted by Rosenbach (Footnote 42).
38. Libbertz and Ruppel, quoted by Rosenbach (Footnote 42).
39. Lorenz: Beobachtungen über die Mikro-Organismen des Schweinerotlaufs und verwandter Krankheiten, Arch. f. wissensch. u. prakt. Tierh. **18:** 38, 1892.
40. Preisz, H.: Beitrage zur Kenntnis des Schweinerotlaufs, abstr. Centralbl. f. Bakteriol. **11:** 109, 1892.
41. Jensen, C. O.: Die Aetiologie des Nesselfiebers und der diffusen Hautrenkrose des Schweines, Deutsch. Ztschr. f. Thiermed. **18:** 1891-1892.
42. Rosenbach, F. J.: Experimental Morphologshe und klinishe Studien der Erreger des Schweinerotlaufs Erysipeloid und Mausesepti-kamie, Ztschr. f. Hyg. u. Infektionskrankh. **63:** 343-371, 1909.
43. Rickmann: Zur Frage der Identität der Erreger des Schweinerotlaufs, des Erysipeloids und der Mausesepikämie, Ztschr. f. Hyg. u. Infektionskrankh. **64:** 362-364, 1909.

The eruption started, according to the patient, as a small "red area," involving the middle third of the flexor surface of the right forearm, and gradually spread (Fig. 2). A few days later red blotches appeared on the left forearm (Fig. 3). When I first examined her, six days after the onset, she presented on the middle and upper thirds of the flexor surface of the right forearm a sharply circumscribed patch of erythema, the surface of which was not smooth but scattered here and there with small papules. It was inflammatory. The upper border was raised and concave; the lower border was irregular. The lesion extended around the internal aspect of the forearm and involved most of the extensor surface, almost joining the external border on the flexor surface. The entire forearm was swollen. There was no evidence of a previous trauma; no evidence of suppuration; no lymphangitis, or enlargement or tenderness of the axillary glands.

On the flexor surface of the left forearm there were patches of erythema; some were confluent, producing a blotchy appearance; the surface was smooth. The eruption here was less pronounced than on the right forearm.

Itching was absent; the only complaint was a burning sensation with severe deep seated pain, on account of which she was admitted to the hospital as a patient. During her stay in the hospital (sixteen days) the temperature was normal; there was no leukocytosis; the urine examination was normal and there was no suppuration, lymphangitis or glandular involvement. Deep seated pain was constantly present and interfered with sleep. It was out of all proportion to the appearance of the eruption and necessitated the administration of morphin. There was no further progression of the eruption on the right forearm; on the left forearm it progressed until the entire extensor surface was similarly involved. The eruption on both forearms gradually disappeared without desquamation, twenty-three days following its onset. Boric acid compresses were the only local treatment applied.

Bacteriologic Studies (by Dr. Claude P. Brown).—A portion of the skin was excised: one half was intended for culture, the remaining half for histologic section. Through a misunderstanding, the entire section was placed in the fixing solution for histologic examination.

An area of the involved skin was cleansed with soap and water, and alcohol. Cultures were made of the serum obtained by scarification, by puncturing and by aspiration on blood agar, serum dextrose bouillon and hormone bouillon. This procedure was repeated three different times. The following organisms were obtained: *Staphylococcus aureus, Streptococcus viridans,* a gram-positive bacillus of the diphtheroid group, a gram-negative bacillus, and a gram-positive coccus

Fig. 3 (Case 1).—Erythema involving the entire extensor surface of the left forearm.

not identified. In the aforementioned manner the normal skin was examined one time; a gram-positive bacillus of the diphtheroid group was the only organism obtained. A culture of the throat on two different occasions yielded *Streptococcus hemolyticus* and *viridans, Micrococcus catarrhalis* and a diphtheroid bacillus (not like the one obtained from the skin).

The gram-positive bacilli of the diphtheroid group, after forty-eight hours, showed a raised grayish coloring, with deep indentations of the border, starlike. It was of the solid staining type, no granules and no branching. The organisms were uniform in size, from 1.5 to 2 microns in diameter. They grew sparsely in serum dextrose bouillon, not sufficiently to cause cloudiness. I have never seen this type colony of the diphtheroid bacilli. The organism was not pathogenic to white mice.

Conclusion.—The organisms obtained in this study did not seem of especial significance, with the possible exception of the gram-positive bacilli isolated from the skin. The presence of streptococci on skin is unusual, but no especial significance can be attached to their presence. Staphylococcus was the type normally found on the skin.

Histologic Examination.—A specimen of skin removed from the lesion on the right forearm showed a nonspecific inflammation of the skin. With Gram's stain a few scattered cocci were present.

CASE 2.—*Involvement of face.* A woman telephone operator, aged 21, presented on almost the entire right side of the face a bright red patch of erythema (Fig. 4). The surface was intact and smooth, the edges irregular and sharply marginated. The involved area was hot to the touch, slightly swollen, not tender, not painful and not pruritic. The only subjective complaint was a sense of burning. There was no evidence of suppuration, no glandular involvement and no fever. It started, according to the patient, as a small "pimple" in the center of the face and gradually spread. At about this time the scar of an appendectomy became inflamed, tender and later scaly, but soon returned to its normal appearance.

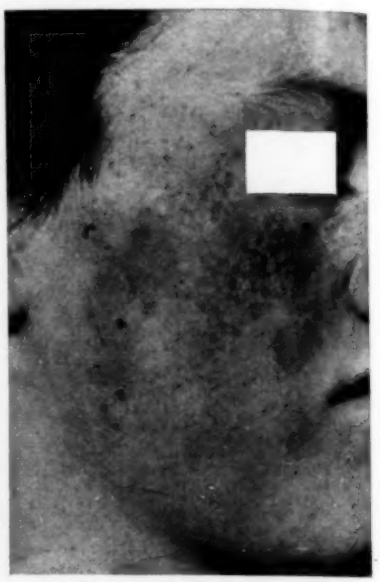

Fig. 4 (Case 2). — An erysipelas-like eruption, not true erysipeloid. A sharply marginated patch of erythema, slowly progressive. The surface was smooth and hot to the touch; the only subjective complaint was burning; the characteristic purple red of erysipeloid was lacking.

The erythema on the face varied; at times it was scarcely perceptible, but later it became quite distinct. After varying in severity from time to time, it gradually disappeared about three months after its onset. Desquamation preceded its complete involution.

A general physical examination was essentially negative, except that the patient was generally below par, appeared tired and complained of easily induced fatigue and anorexia. The only demonstrable focus of infection was badly infected tonsils from which *Streptococcus viridans* was isolated.

COMMENT

The eruption on the forearm conformed clinically with what is designated as erysipeloid, except that it lacked the characteristic purple red and its surface was smooth. The severity of the symptoms approached the symptoms of swine erysipelas in man. Although bacteriologic studies were not conclusive, yet, in view of the nature of the eruption, the circumstances under which it developed and the demonstration of cocci in histologic section, it was in all probability bacterial in origin.

It is not known whether all cases of erysipeloid are due to infection with the bacillus of swine erysipelas, although no other organism has been described. It appears that infection with the bacillus of swine erysipelas produces a distinctive cutaneous picture.

It is conceivable that other organisms produce erysipelas-like eruptions, but it appears that the clinical picture is not that of true erysipeloid.

The eruption on the face was in all probability bacterial in origin. It lacked the purplish red of true

erysipeloid, and, furthermore, it disappeared with desquamation. The two eruptions under discussion lacked the distinctive features of an acute eczema (of external or internal origin); they were not cellulitis, and the one on the face was not erysipelas; they were distinctive and erysipelas-like but not true erysipeloid.

1934 Spruce Street.

RECONSTRUCTIVE SURGERY

A CASE OF CONGENITAL ABSENCE OF ARMS

HARRY E. MOCK, M.D.
CHICAGO

This case, in which I operated in 1920, was reported to the Chicago Surgical Society in 1921. I waited a few years to see the anatomic and functional results, before publishing the report. Recently the patient was shown again before the clinic of the Chicago Surgical Society held at St. Luke's Hospital, and some of those present urged that a report of the case should be published. The boy has received considerable mention in the lay press and also in *Hygeia;* therefore, no hesitancy is felt in using his name.

Henry Wiegman was born with the complete absence of both upper extremities (Fig. 1). In addition to this deformity, he had congenital clubfoot, extreme equinovarus. His feet were short and thick, with an absence of toes except for a short great toe on the left foot. On the right foot there was a long digit, which was a typical thumb lying along the inner aspect of the ankle. He had utilized this thumb and ankle as a hand in performing such acts as bathing, washing his teeth and, occasionally, writing or drawing.

Henry, at the age of 12, was an unusually bright boy, was up with his class, and showed a marked talent for drawing. Already he displayed some real ability as a cartoonist.

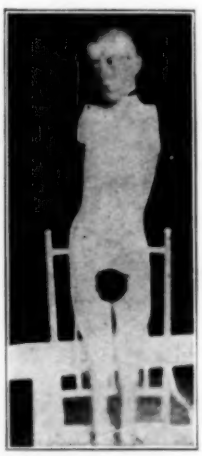

Fig. 1. — Congenital absence of arms in a boy, aged 12 years.

His early history was obtained from his parents:

He was 2 years of age before he learned to scoot. Day after day his mother and sister played with him, drawing his little feet under him in order to teach him to scoot and to rise to a sitting posture. He was 4 years of age before he learned to walk. After this he made rapid progress in learning to do things for himself. When 6 years of age, he could hold a large pencil between his right cheek and shoulder and make lines. By the time he was 7, he could write and draw. He showed a penchant for drawing from the very beginning. At about this age he conquered the task of opening doors by grasping the knob between his cheek and shoulder. Shortly thereafter he began to hold a little scroll saw in this way, or with his right foot, and would saw out different objects. His wooden Santas have become quite famous.

He entered the Spaulding School for Handicapped Children at the age of 8 and made rapid progress in all subjects. He became expert on the typewriter, striking the keys with a long stick held between cheek and right shoulder. He was also an expert weaver of rugs, shifting the shuttle by grasping it with cheek and shoulder.

In May, 1920, the boy was first brought to my attention. At that time there was some discussion as to whether he should enter a side show or not. His teachers felt that this would be the end of what might become a brilliant career. Henry, himself, had given his future a great deal of thought, and he desired to complete his education and to take up some type of art work. His ambition had been fired by listening to an address by Michael Dowling, the bank president of Olivia, Minn., who had lost both legs and both arms when 16 years of age. He had also corresponded with Judge Corliss of Dallas, Texas, who had advanced from a laborer to a county judgeship after losing both his arms at the shoulders.

Fig. 2.—Short rudimentary humerus, with undeveloped head of humerus and glenoid fossa.

At the age of 12, however, Henry had become sensitive at having to depend on other persons to dress him and attend to many of his daily needs. Above all, he wanted sleeves in his shirts and coats, and arms in the sleeves, even though they were artificial arms. At this time his case was first studied from the point of view of reconstructive surgery.

The examination showed two small elevations of the chest wall at the poorly formed shoulders, but the skin of the chest passed smoothly over these from front to back. There were no axillae and there was only a slight protuberance at each end of these elevations, indicating the point where the arms were intended to be. There was no cicatrix visible over these areas. None of the anterior group of muscles, the biceps or coracobrachialis, seemed to be present, but there was a fairly developed posterior portion of deltoid muscles on both sides. The pectoralis major muscle on either side was foreshortened and poorly developed, as was also the latissimus dorsi. The shoulders were narrow and drooping, and the right was raised higher than the left, owing to his constant use of this shoulder.

The roentgen-ray findings showed a small, underdeveloped upper fragment of humerus 3 inches long on the right side and about 4 inches long on the left. These fragments of bone lay along the outer border of each scapula. The glenoid fossa on either side was shallow and poorly developed. Each head of the humerus was small, underdeveloped and in close proximity to the coracoid process. The right clavicle was bent upward in its outer half, evidently owing to the approximation of this shoulder with his right cheek (Fig. 2).

It was felt that an operation would result in freeing each rudimentary humerus, that muscle could be obtained from the pectoralis major on each side to form a muscular covering for the bone, and that a plastic operation on the skin of the chest wall could be utilized in covering over these stumps and forming axillae. This would give him two short stumps in which a certain amount of motion might be developed and to which

artificial arms might be attached. If nothing further was accomplished than to make him less conspicuous—to give him sleeves with arms in—it was felt that the operation would be a success.

After several examinations, study of roentgenograms and consultations with several members of St. Luke's staff, the operative procedure described herein was decided on. None of us ever dreamed of the development in these rudimentary humeri that has occurred.

In June, 1920, I operated on the right side. The operation consisted of an incision 4 inches long, extending from just below the outer third of the right clavicle downward along the anterior chest, and approximately 2 inches inside what would have been the anterior axillary fold, had an axilla existed. A similar incision was made downward along the posterior chest approximately 2 inches behind what would have been the posterior axillary fold. The skin was dissected outward to the desired location of the axillary fold behind, and in front the skin was dissected outward to a point that would correspond to the outer border of the biceps muscle, if one had existed. Thus, additional skin was preserved and formed into anterior and posterior flaps to cover the under surface of the stump after the rudimentary humerus was freed.

Fig. 3.—Physical exercises were used for the development of stumps, following operation.

Next, a careful dissection was made along the external surfaces of the pectoralis major and the latissimus dorsi inward, an endeavor being made to expose the lower end of the humerus first. It was found lying along the lateral margin of the scapula and seemed to be attached to the scapula by a fibrous band. This was undoubtedly the undeveloped teres major muscle. This band was cut and, as outward traction was made on the small humerus, the dissection was carried upward anteriorly to the insertion of the pectoralis major and posteriorly to the insertion of the latissimus dorsi muscle. The humerus, which was in circumference about the size of the humerus in a 2 year old child, could now be pulled outward or abducted to about 30 degrees. The two muscles were undeveloped and foreshortened, thus preventing further abduction. The fascia axillaris was not cut; therefore the vessels and nerves in the axillary region were not exposed.

There was now presented a small rudimentary humerus approximately 3 inches long, covered posteriorly and laterally by a fairly well developed deltoid muscle and skin; an exposed axilla covered with fascia underneath, in which were the vessels and nerves, and the shoulder joint surrounded by the insertions of the supraspinatus, infraspinatus, teres major and minor and the other shoulder muscles and perhaps small portions of the origins of the biceps, triceps and coracobrachialis muscles. Protruding below the insertions of the pectoralis major and the latissimus dorsi muscles was the inner or medial surface of the small humerus, completely exposed and free of all muscle covering for about 2 inches. The chest wall was now denuded of skin for an area extending downward from the new formed axilla, a distance of 4 inches, and 5 inches in width.

In order to cover the exposed portion of the humerus, and to help form a well rounded stump, the lower half (from the third to the seventh costal cartilages) of the pectoralis major muscle was dissected free from the chest downward toward its costal origin and bisected just above this origin. Its small insertion on the humerus was left intact. This insertion was just a narrow band immediately below the head of the humerus or at the upper end of the crista tuberculi majoris. This freed portion of the pectoralis major was now brought over and wrapped around the exposed portion of the humerus, covering over the end of the bone as well, and was sutured to the fascia of the deltoid anteriorly and posteriorly and behind the end of the bone. Thus the muscle flap of the pectoralis filled in the space where the biceps and coracobrachialis were absent. Its origin from the clavicle and sternum, combined with its insertion at the upper end of the crista tuberositi majoris, composed the origin of this transplanted muscle; its new insertion was to the medial surface and around the end of the rudimentary humerus. The fact that the pars sternocostalis and pars abdominalis of this muscle pass upward to a higher insertion on the humerus than does the pars clavicularis served well as a new origin for this transplanted portion.

The final step in the operation consisted of suturing the skin flaps around the medial surface of the stump and across its lower end, thus completing the formation of the stump. The axilla was closed in by cutting two sliding pedicled skin flaps from the anterior and posterior chest wall, uniting them in the axilla and suturing their lower margins to the skin flaps surrounding the stump. Multiple radiating incisions downward and backward on the chest wall, dissecting and undermining the skin for a considerable distance over the chest, were necessary in order to close in the denuded area left between the posterior and anterior axillary lines below the new formed axilla. The making of this axilla and the covering of this large denuded area were two of the most difficult plastic procedures that I have ever attempted.

The left side was operated on two weeks later and in practically the same manner, except that there was 3 inches of exposed humerus to cover with transplanted pectoralis major muscle and that the anterior skin flap in the new formed axilla sloughed, thus necessitating a skin graft before healing was complete. Neither of the wounds became infected. The patient made an excellent recovery from both operations.

Fig. 4. — The stumps as they appeared four years after operation.

Fig. 5.—Four years after operation, fully developed head of humerus and well developed upper shaft. The distal end of shaft turned upward, showing greater growth of bone than of soft tissues.

On the completion of the healing of the wounds following these two operations, it seemed doubtful whether very much had been accomplished. The boy now had two small stumps, in circumference about the size of a baby's upper arm, with no ability to move them in any direction. The measurements were:

Right stump, from axilla to distal end, 2 inches.
Left stump, 3 inches.
Right stump, from acromion process to distal end, 4 inches.
Left stump, 5 inches.

Two months after the operations had been performed, Henry returned to the Spaulding School for Handicapped Children. Here Miss Jane Neil, the principal, and Miss Carney, the chief physiotherapist, placed the boy under a most thorough course in muscle training exercises and occupational training. Their untiring efforts are largely responsible for the result

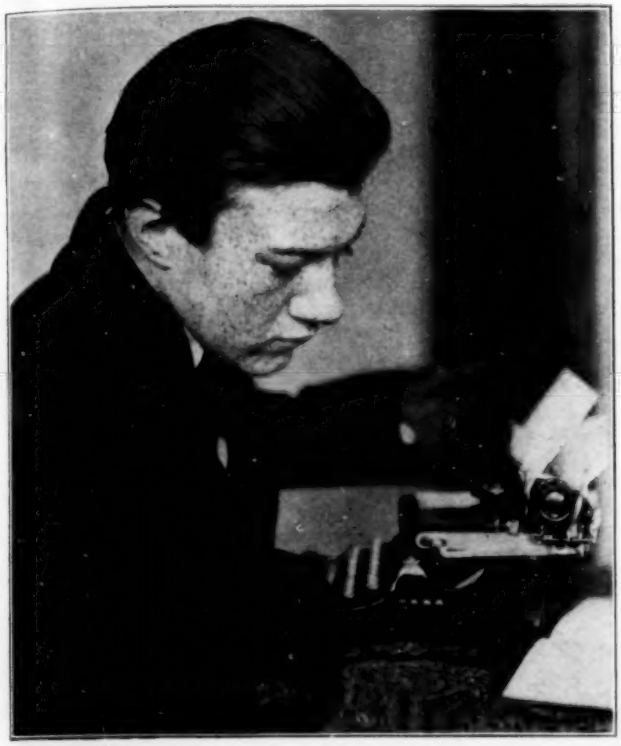

Fig. 6.—Henry at his typewriter.

obtained. By December, these stumps had become firm and muscular; Henry could abduct the little stumps to approximately a right angle and he was ready for his artificial arms (Fig. 3).

The arms had been made after careful consideration of the type and character needed and after consultations between the surgeon and the artificial limb manufacturer.

December 23, Henry came to the hospital as soon as he had received his new arms. He was dressed in a new suit and a new shirt; both shirt and coat had sleeves, the first the boy had ever had. With his new arms in these sleeves he looked like any ordinary healthy boy, but I doubt whether there was ever a prouder or happier child. Within a half hour, he was able to grasp a pencil in the clamp attachment at the end of his right arm, could write better than most boys of his age and could draw better than when he held the pencil between his right cheek and shoulder. A little later he returned to the Spaulding School, and just before entering Miss Neil's office, he asked Miss Carney to throw his overcoat over his left arm and place his cap in his left hand. Then he marched in and put out his right hand to his friend, the principal "just like a gentleman," as he expressed it.

That noon at luncheon at the school, he grasped a spoon in his right hand and ate like other boys instead of "lapping his food like a kitty."

From all accounts his homecoming that evening and the surprise he gave his mother, who did not know that his artificial arms were ready and who had never seen his new suit, was very impressive. It must have been, for it is impossible to describe the choky sensations that a number of us doctors had that day at the hospital as Henry displayed his "first sleeves, and *sleeves with arms in 'em.*"

Since then Henry has grown considerably, although he is still undersized for the age of 17. His stumps are much larger in circumference and measure now:

Right stump, from axilla to distal end, 4 inches.
Left stump, 5½ inches.
Right stump, from acromion process to distal end, 5¼ inches.
Left stump, 6¾ inches (Fig. 4).

From a scientific standpoint, the two most interesting features about his case are the developments in the bone and shoulder joint and in the transplanted muscle. A recent roentgenogram shows well developed glenoid fossae, and the head of each humerus is well rounded and apparently normal. Each humerus has shown decided growth, the left growing more rapidly than the soft tissues about it, so that now it protrudes more than an inch at the end of the stump, and is covered only with skin (Fig. 5).

Here we have an excellent example of Wolff's law, the rudimentary humerus and glenoid fossa taking on the normal shape and characteristics of these parts as function has developed.

The transplanted pectoralis major muscles can be contracted at will. Henry can make his right transplanted pectoralis stand out like a biceps, and he gets the same pleasure out of "making a muscle" as any boy does who flexes his arm. In its limited scope, this transplanted muscle has taken on the shape and function of a biceps muscle.

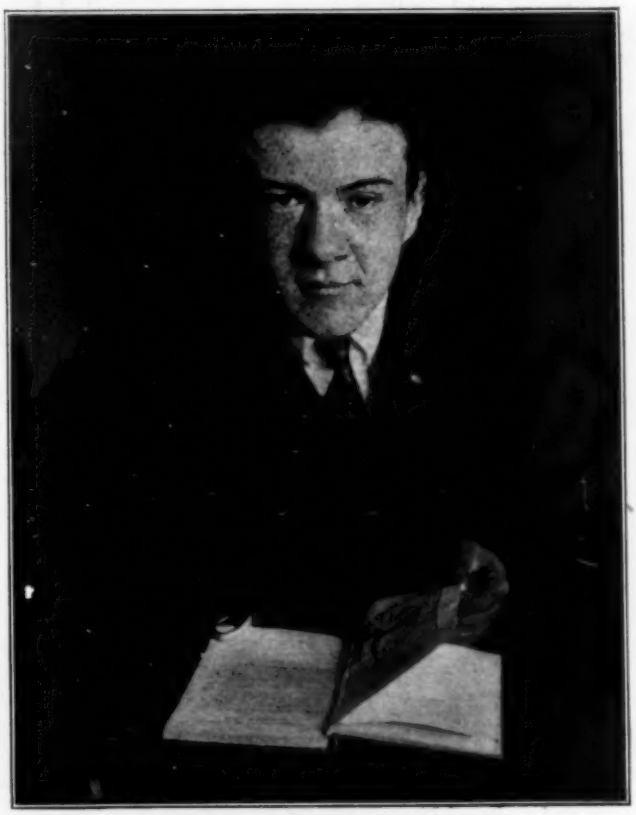

Fig. 7.—Henry with sleeves and arms in his sleeves.

Henry has a new pair of artificial arms, having outgrown his old ones. He paid for the new pair himself

with money he made from the sale of his artistic Christmas cards which he designed and made from wood cuts. He has attended the Art Institute the last two summers and is becoming a real artist. He does practically everything for himself, using his arms for most maneuvers, but is still opening doors by grasping the knob with his right cheek and shoulder (Figs. 6 and 7).

CAUSATION

The etiology of these congenital deformities has been discussed for centuries. Maternal impressions have always been advanced as a cause for deformities and birth marks of all descriptions. In the case presented here, the boy's mother relates the following experience, and it is corroborated by her husband and niece:

When about two months pregnant, the mother confided the fact to an old woman but requested her not to mention it. The old woman said it was nothing to be ashamed of, and related an instance of a young mother who was pregnant and ashamed of it, and when her boy was born he had no arms. As the old woman told Mrs. W. about this case, she grasped her by the shoulders and shook her. H. W.'s mother claims that this made a fearful impression on her, and she told her husband about it. Shortly thereafter a Chicago newspaper published an article with pictures telling of certain Filipino tribes that punished parents by cutting off the arms of their children. She brooded over these pictures until her niece burned the paper.

Modern writers on this subject ascribe the cause to heredity, to intra-uterine disease or accident, or to the ray theory (Babes' theory) of a trophic center in the brain controlling the development of the extremities, with disease or absence of this center in case of deformity.

There are many cases of polydactylia on record in which familial or hereditary influences have acted. A few cases of ectrodactylia are also reported. Emil Haim reports a case of lobster-claw hand in which grandfather and mother were similarly affected. In my boyhood days, I knew a man with lobster-claw hand whose father had a similar condition. In Henry's case there is no hereditary or family history of a similar deformity. The boy's aunt, his father's sister, was born with hydrocephalus and died at the age of 8. This is the only evidence of intra-uterine or fetal disease in the family, as far as is known. Apert says: "There are familial and hereditary malformations of the extremities of which the causes lie buried in influences which acted in preceding generations." Heredity of polydactylism has been known to persist through several generations; certain forms of ectrodactylism, parodactylia, monodactylia, and some cases of syndactylia, less often, have been familial and hereditary. Apert also declares that "atavism has played no part in the genesis of these malformations."

Most credence is given to the theory of amniotitis, with adhesions, the bands of adhesions cutting off the blood supply to the extremity, thus causing an intra-uterine amputation. The absence of amniotic fluid, with compression of the fetal extremity, is also given as a cause of the equinovarus condition. The compression theory could best account for the absence of the arms in this case, as the rudimentary stumps do not resemble in any respect the usual aspect of a supposedly intra-uterine amputation; it might even explain the absence of part of the toes and explain the equinus, but none of these theories explain the presence on his foot of the digit that resembles a thumb.

Signs of intra-uterine disease during pregnancy have been reported by various writers, preceding malformations in the new-born. Amniotic adhesions, with absence of amniotic fluid, has been oftenest reported in cases of syndactylism, thus giving credence to the fetal compression theory. Amniotic alterations with adhesions, amniotic-fetal bands, is the more accepted theory for fetal amputations. Proof of true amputations, with absorption of the amputated part, is held to be found in the scarring and constricting of the amputated stump; as far as I can find, the remaining portion of the extremity has never been found in utero.

Syphilis in one of the parents has been ascribed as a cause of many malformations, especially absence of a part or all of a bone of an extremity. The Wassermann reaction in this case was negative. There is no history of syphilis in the father or mother.

CONCLUSIONS

In this case sentiment, art and science are so closely mingled that it has been impossible to write a purely scientific paper. The case demonstrates the need of coordinating the work of reconstructive surgery and education. The two are inseparable in rehabilitating the disabled.

The surgeon has a great opportunity to inject ambition into his patient, to tell him of the accomplishments of others similarly handicapped, and finally to place him in the hands of those lay agencies, giving a continuity of service that will assure the final economic end-result in every case of permanent handicap.

What has been done for this boy can be done for great numbers of congenital and acquired deformities in both children and adults. The study of these cases from the point of view of rehabilitation opens up new and exceedingly interesting avenues of surgery.

122 South Michigan Avenue.

CHANCROIDAL ULCERS TREATED LOCALLY WITH ANTIMONY AND POTASSIUM TARTRATE SOLUTIONS

REPORT OF EIGHT CASES

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INDIANAPOLIS

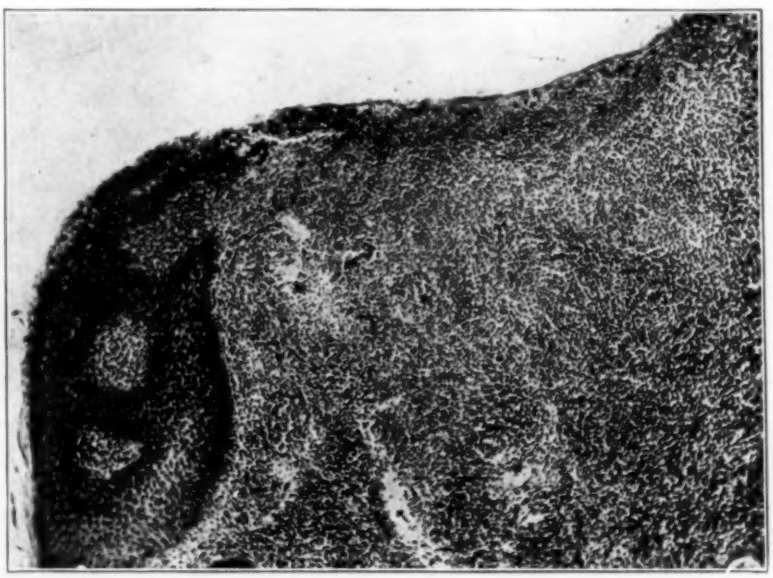
Necrosis in the chancre takes place at the expense of newly formed tissue elements, while the chancroid destroys the normal fixed structures of the parts affected. The soft chancre, therefore, is a true ulcer. It is a process of infiltration and tissue suppuration with necrotic material covering the area of dissolution, and it is this covering that renders local application of antiseptics of little value.

There is no need to recount here the failures of the usual agents in treatment. The cautery and caustics, as a class, have been the most serviceable, because they go beyond the protective coverings to the base of the sore. But ordinary caustics destroy normal tissues as readily as those which are pathologic, so that repeated applications result in a deepening and widening of the ulcer, and make it impossible to utilize the germicidal properties that caustics possess. Relapse from autoinoculation is a problem.

To be ideal, an escharotic should be able to destroy pathologic tissues, though this ability to precipitate proteins should be mild. Antimony compounds act as mild escharotics.

Antimony and potassium tartrate, while it removes the necrotic tissue in from twenty-four to forty-eight hours, possesses the quality of being so mild that it does not continue to erode beyond the base and, therefore, may be used repeatedly for its germicidal effect and its ability to remove any new pathologic tissue that forms. There is evidence that good use can be made of antimony and potassium tartrate when the chemical, in dilute solution, is applied to chancroidal ulcers. Brief case reports are here given: [1]

CASE 1.—The patient was first seen, May 25, 1925, with a lesion 0.3 cm. in diameter, near the frenum, of two days' duration. The lesion was cauterized with diathermy and dressed with 1 per cent. mercurochrome-220 soluble. In two weeks, he returned stating that another physician had applied "caustic," but the sore grew larger and more tender. It had reached a diameter of 1 cm. and was surrounded with considerable edema. Daily cleansings of the sore with soap and water, together with intravenous injections, every other day, with 1 per cent. solution of antimony and potassium tartrate did not check the spreading margins. June 21, after cleansing the sore, I applied a 1 per cent. antimony and potassium tartrate solution locally. In addition to smart burning, it produced a grayish covering on the base. I began cleaning the sore and applying a 0.5 per cent. solution—a strength well tolerated—twice daily, and on June 23, there was little tenderness and a healthy color to the sore. The edges had not spread. June 25, there was definite healing; July 1, healing was complete. The blood Wassermann reaction was negative.



Section made from the margin of the ulcer in Case 5, two days after the beginning of the treatment. There is no undermining of the skin edge; there is a clean, smooth base with a proliferation of small round cells beneath.

CASE 2.—The patient was first seen, June 29, with a lesion in the coronary sulcus, of three days' duration, and 0.2 cm. in diameter. The ragged lesion with undermined edges increased in diameter to 0.8 cm., while the patient applied an ointment consisting of calomel, 33 per cent., in equal parts of petrolatum and hydrous wool fat. On July 3, 4, 5, 6 and 7, I applied a 0.5 per cent. solution of antimony and potassium tartrate locally, and there was complete healing by July 10, though an inguinal bubo went on to suppuration. The patient did not return afterward.

CASE 3.—The patient was first seen, July 15, with a lesion in the region of the frenum, 1.5 cm. by 1.3 cm., with very ragged, undermined edges and a doughy base. Twice daily, after cleansing, I applied, locally, 0.5 per cent. solution of antimony and potassium tartrate. July 18, a slough 2 mm. in thickness easily peeled out. July 29, the lesion was 1 cm. by 1 cm. and August 4 was 0.5 cm. by 0.5 cm.; August 10, the healing was complete. The Wassermann reaction was negative.

CASE 4.—July 20, a patient had three deep, undermined sores on the prepuce near the tip. They had existed six weeks under mercurochrome dressings. The diameter of two ovoid sores was 0.2 cm. by 0.4 cm. and 0.4 cm. by 0.8 cm., respectively. The third was crescent in shape and was 0.5 cm. by 2.5 cm. Under the routine treatment, the basis of the sores were clean, July 23. July 28, the smaller lesions were one-half their original size, while the elongated one was 0.2 cm. in width and had the epithelium closed over one end. August 1, all the lesions were healed.

CASE 5.—The dorsum of the prepuce had three sloughing sores overlying a base 1.7 cm. by 2.0 cm. in a man seen July 28. The skin between the sores being undermined, I cut it away before applying any solutions. August 1, the base was covered with granulating tissue, and there was gradual healing, becoming complete, August 15.

CASE 6.—July 29, a man was seen, who had five small lesions on the foreskin. No increase in size occurred during a four day period of applications of the solution of antimony and potassium tartrate. From August 3 to August 10, the patient was away, and applied a 1 per cent. solution of mercurochrome-220 soluble. August 10, two sores had coalesced, and the others had increased in size so that they averaged 0.5 cm. by 1.0 cm. After the antimony and potassium tartrate solution treatment had been resumed, there was no further increase in size, but in this instance healing did not take definite form until August 18. At the time of the writing of this paper, August 28, the sores are one-half their maximum size.

CASE 7.—A patient of Dr. J. O. Thayer was first seen, July 28, when the retracted foreskin was swollen to enormous proportions and presented an ulcer of extreme tenderness, of two weeks' duration, under "ungentine" dressings. It was 1 cm. by 4 cm. in size, and was covered with a necrotic exudate. A solution of 0.5 per cent. antimony and potassium tartrate was applied, and the next day the slough peeled out most easily, leaving only a portion about 1 cm. still covered. The next day this slipped off. The color was good, the edges smooth and the edema lessening. August 1, the patient took a vacation, and until August 10 applied a 1 per cent. solution of mercurochrome-220 soluble. August 10, by a process of infolding, the wound surfaces had become approximated and had healed completely. We have seen the patient since, and there is left only the edema, which is rapidly subsiding.

CASE 8.—August 10, a patient presented a fluctuating left inguinal bubo, the size of a hen egg. There were no other lesions, though he gave a history of having had a small ulcer which lasted but three days, on the penis. This was two weeks previous. I drained the bubo by a stab wound incision, and did not get to see the patient until August 22, when the wound was 2.1 cm. in diameter. The antimony and potassium tartrate was applied twice daily to the sore, and there was no further spreading of the margins. August 24, the edges had begun to close in, and August 28, the sore was 1.1 cm. in diameter.

Here is a small group of chancroidal infections that responded to treatment in a manner reasonably out of the ordinary; so much so, in fact, that a report seems justified.

419 Hume-Mansur Building.

1. All the patients were white men and were seen in private practice—a factor of no small importance in cooperation. In each instance, dark-field examinations on two successive days before treatment were negative for Spirochaeta pallida.

DIABETIC LIPEMIA RETINALIS AND FAT EMBOLISM

REPORT OF CASE *

CLARENCE F. BANTIN, M.D.
OMAHA

This case of diabetic lipemia retinalis and fat embolism is presented because of its many unusual features and serious complications.

REPORT OF CASE

History.—E. A., a man, aged 23, was brought to the University Hospital, Feb. 15, 1925, in a comatose condition, from which he could be but slightly roused. A history was obtained from relatives that, five and a half months previously, he had suddenly developed an intense thirst and appetite, with polyuria and nocturia. Three weeks after the onset he became markedly drowsy. He was taken to a hospital, diagnosed as having diabetes, treated with insulin, and dismissed two weeks later with instructions as to diet. He adhered to the diet quite closely for about two months, after which, finding that he was free from his symptoms, he became careless. Thirst and polyuria returned and gradually became more severe. He finally began to eat anything, including pie and ice cream, and one evening developed an intense headache. The following day he felt drowsy, and on the second day could not be aroused and was breathing with great difficulty. The local physician gave him three large doses of insulin (amount not known), and said that, as a result, the quantity of sugar in the urine was greatly reduced. Orange juice, which had been given, was vomited. He was brought to the University Hospital that evening. No history of previous renal disease could be elicited, and except for occasional attacks of tonsillitis his past history was negative.

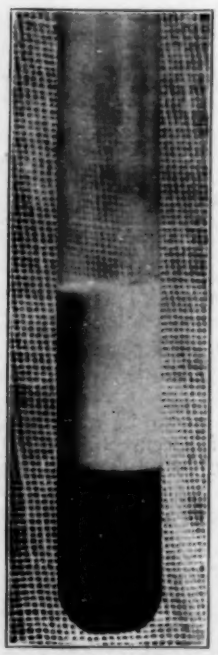


Fig. 1.—Centrifugalized tube of citrated blood (2 drops of a 20 per cent. citrate solution) showing the relative volume of fat.

Physical Examination.—The patient was in a comatose condition, deeply cyanosed and gasping for breath. Respiration was from 30 to 40 per minute; pulse 130 to 150 and very weak; systolic pressure, 60; diastolic, 0, and rectal temperature, 97 F. Nothing pathologic could be detected in the lungs or heart, and except for the absence of knee jerks, the physical examination was negative. Blood taken for chemical examination had a milky appearance, and on centrifugalization, the serum was quite white and had the consistency of cream, characteristic of a marked lipemia (Fig. 1). Microscopic examination of the serum showed innumerable minute fat globules and some larger ones. The larger globules stained with scharlach R.

Ophthalmoscopic Examination.—A very striking picture was observed: Large numbers of distinct globules of yellowish white were seen in the chocolate colored veins, varying in size from about half the diameter of the veins to those large enough to be flattened by the vessel walls. The globules moved in a continuous stream from the periphery toward the optic disk, passing quickly over its margin and disappearing in its center. In contrast to the veins, the arteries appeared narrower, were of a light pink shade, and showed no movement within their lumina. The fundus was salmon color, and the optic disk appeared waxy, with an indistinct margin but very little elevation. The picture was so striking that several were called to observe it, including one of the hospital interns, a senior medical student, a laboratory technician and several others. A drawing of the fundus was made by Dr. L. F. Swihart, from observation, illustrating the appearance of the globules (Fig. 2). The following morning when the fundi were examined, the globules were no longer visible, but the other findings were still present.

Laboratory Findings.—The urine was light yellow, with 1.020 specific gravity. It showed a trace of sugar, tests for albumin and acetone were positive, there were a few pus and epithelial cells, a few red blood cells, urate and calcium oxalate crystals and fat droplets. The diacetic acid was negative. The blood sugar was 354 mg. per hundred cubic centimeters, and the blood nonprotein nitrogen, 45 mg. per hundred cubic centimeters. The blood count was 5,700,000 red cells, and 29,000 leukocytes, with 85 per cent. polymorphonuclears.

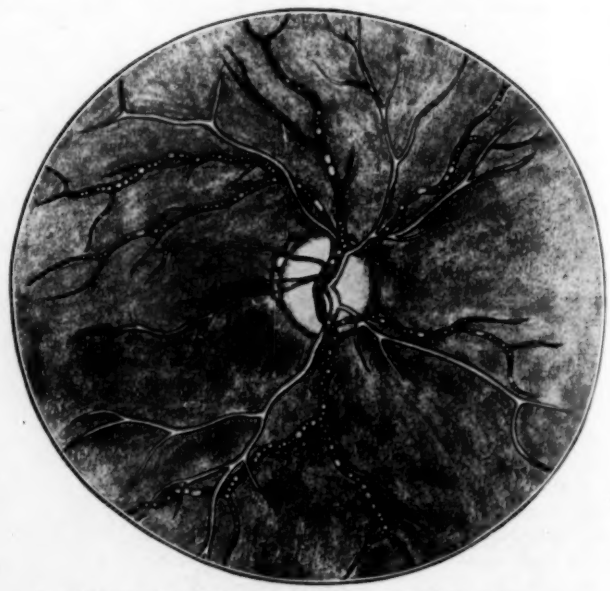


Fig. 2.—Drawing of fundus, showing fat globules in the veins.

Treatment.—The patient was catheterized, and was given an enema and a gastric lavage at once. A pint of 5 per cent. sodium bicarbonate solution was left in the stomach, and proctoclysis of the solution started. External heat was applied to the body. Thirty units of insulin was given intravenously, and repeated in six hours, while 150 c.c. of orange juice was given every three hours by mouth.

Progress.—The following morning the patient's breathing was less labored. The blood sugar was 333 mg., and there was no sugar or acetone in the urine. The 30 units of insulin was repeated every three hours and on the second day the blood sugar was reduced to 170 mg., but the nonprotein nitrogen had risen to 76 mg. in the morning and 138 mg. in the evening, with a creatinin of 5.6 mg. The insulin was reduced to 10 units every three hours, with 10 gm. of glucose by mouth, and as there was almost a complete anuria, hot packs were instituted. On the third day, the temperature was 104.8 F., and the patient showed definite signs of a lobular pneumonia. He was quite rational and was breathing rapidly but easily. The blood sugar was about the same, but both the nonprotein nitrogen and the creatinin were higher. On the fourth day the patient appeared to be better, his temperature was lower and he began to eliminate, by sweating in the hot packs and voiding a small amount of urine. The creatinin had reached 8.7 mg., the nonprotein nitrogen was 135 mg. and there was still some visible fat in the blood serum. The creatinin began to drop on the fifth day, although the nonprotein nitrogen continued to rise until it reached its highest point of 192 mg. on the ninth day. At this time the visible fat had disappeared from the blood serum. On the fifteenth day the nonprotein nitrogen was 39 mg. and the creatinin was

* From the service of Drs. Crummer and Anderson, University of Nebraska College of Medicine.

1.3 mg., both within normal limits. After that time, they remained normal, and the blood sugar averaged about 150 mg.

Up to the eighth day, the patient had received only tea and toast, in addition to the glucose given with the insulin, but at that time he was started on a diet of 600 calories, with 8 units of insulin before each meal. The diet was increased, and the insulin reduced until by the end of the third week he was on a diet of 2,000 calories and was sugar free, without the use of insulin. At this time he was feeling very well, and his temperature was normal. The pneumonia in the lower right lobe, however, was unresolved, and the blood count had fallen to 3,120,000 red cells and 17,200 leukocytes, with 68 per cent. polymorphonuclears. At the beginning of the fifth week, his temperature rose to 104 F., and he had a severe pleuritic pain in the right side of the chest. The twenty-four hour urine specimen contained 10 gm. of sugar, the first time that sugar had appeared in the urine since he had entered the hospital. The leukocyte count rose to 29,600, with 86 per cent. polymorphonuclears. Four days later the patient developed a swelling, posteriorly in the right flank, with extreme tenderness and a rigidity of all the abdominal muscles. This persisted for several days, but disappeared within a week. The leukocytosis dropped to 11,200, but the patient continued to have a very irregular temperature for the next three weeks, it often rising to 102 F. in the afternoon. He coughed a great deal, and a roentgenogram showed the unresolved pneumonia, with a fluid level in the lower right chest. He remained sugar free on a diet of 2,800 calories, without insulin. He left the hospital two weeks later.

COMMENT

This case presents many unusual features. Lipemia is found more commonly in diabetes than in any other disease, and the blood lipoids have been found to be increased in practically all diabetic patients, even when the fat is not visible in the blood serum. Allen [1] says that the heaviest lipemia occurs only in severe active cases on a high fat diet, which naturally gives rise to acidosis. Bloor [2] explains this lipemia on the basis of a relative inability of the patient with diabetes to remove fat from the blood. This allows an accumulation of total fat, which has been reported as high as 26.25 per

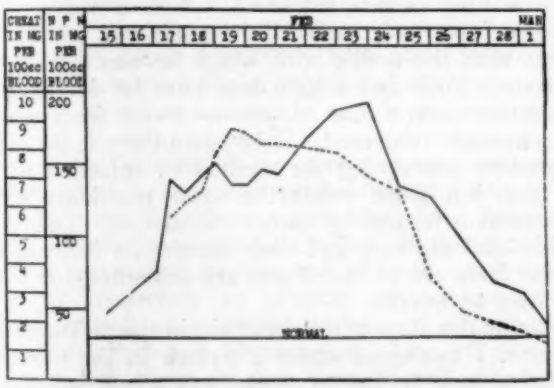


Fig. 3.—Solid line, nonprotein nitrogen; broken line, creatinin.

cent.[3] The actual amount of fat in the blood serum in the case was not determined, but such outstanding changes in the serum and in the retina make it certain that it exceeded the 8 per cent. mentioned by Gray and Root.[3]

The fat of lipemia ordinarily is in such a finely divided state that it is not visible as globules, even under the microscope. The state of aggregation of the fats or lipoids has more to do with the appearance of the retina than the total lipoid content, as retinal changes may be more marked at one time, with a lower total lipoid content, than at another time when the content is higher.[4] Blood fat in its finely divided state passes through the capillaries without producing embolism, but when larger fat globules form or enter the blood stream, they give rise to fat embolism. In traumatic lipemia, these emboli lodge chiefly in the lungs, giving rise to pneumonia. Smaller globules may pass through the pulmonary capillaries and damage any organ in the body. Those lodging in the brain give rise to fever, convulsions, coma and death. Fat embolism

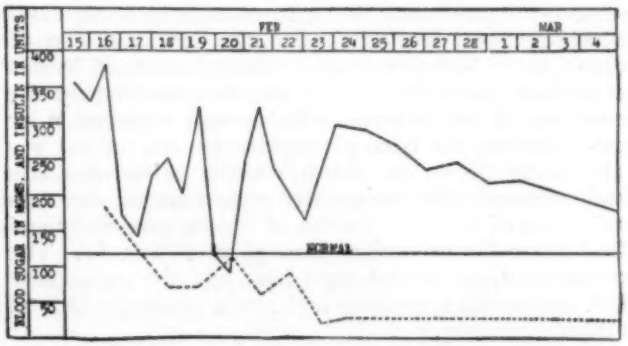


Fig. 4.—Solid line, blood sugar in mg. per hundred cubic centimeters of blood; broken line, insulin in units per twenty-four hours.

from disease such as diabetes is usually limited to the pulmonary capillaries, causing no symptoms.[5] This, together with the observation that diabetic coma may develop with clear plasma and low fat content, discredits the idea that the coma in diabetes is due to fat embolism.[1] However, the ophthalmoscopic observation, in this case of fat droplets of considerable size and number flowing in the retinal veins necessitates an interpretation of fat embolism arising from so severe a diabetic lipemia. Thirty-three cases of lipemia retinalis have been reported. Muskat [6] reviews the literature and reports the thirty-first case. Since then Rowe [7] and Machlis [8] have reported cases, making this one the thirty-fourth reported. There are slight differences in the various descriptions given of lipemia retinalis, but the one observed in this case corresponds most nearly to that described by Wagener.[9] However, no previous record of actual fat globules having been seen in the veins has been found. White spaces, thought to be fat or plasma spaces, were observed microscopically in the capillary network at the base of the nails in a case of lipemia retinalis reported by McCann,[4] but the retinal vessels did not show them.

Although the simplest explanation of the pneumonia and nephritis is an acute infection, apparently neither began before the patient went into coma, and since we know that at that time fat was present in the blood stream in the form of relatively large globules, we must consider the probability that the coma, subsequent pneumonia and nephritis can all be explained on the basis of fat embolism. The glomerular vessels are commonly filled with fat in traumatic fat embolism,

1. Allen, F. M.: Experimental Studies in Diabetes: Lipemia, J. Metabol. Res. **2**: 219 (Aug.) 1922.
2. Bloor, W. R.: Lipemia, J. Biol. Chem. **49**: 201 (Nov.) 1921.
3. Gray, Horace; and Root, H. F.: Lipemia Retinalis, J. A. M. A. **80**: 995 (April 7) 1923.
4. McCann, W. S.: Lipemia Retinalis, Bull. Johns Hopkins Hosp. **34**: 302 (Sept.) 1923.
5. Warthin, A. S.: Traumatic Lipemia and Fatty Embolism, Internat. Clin. **4**: 171, 1913.
6. Muskat, I. I.: Lipemia Retinalis, Am. J. Ophth. **7**: 288 (April) 1924.
7. Rowe, A. H.: Effect of Insulin in Treatment of Diabetic Lipemia, with Lipemia Retinalis, J. A. M. A. **82**: 1168 (April 12) 1924.
8. Machlis, S. A. D.: Diabetes Mellitus, Complicated by Lipemia Retinalis, J. A. M. A. **83**: 1428 (Nov. 1) 1924.
9. Wagener, H. P.: Lipemia Retinalis, Am. J. Ophth. **5**: 521 (July) 1922.

but acute nephritis has not been a common complication.[5] Most recorded cases are rapidly fatal and possibly do not give time for the development of nephritic symptoms. The nephritis of this case was unusual in the rapidity with which nonprotein nitrogen retention developed and the marked creatinin retention of 8.7 mg. per hundred cubic centimeters of blood, with subsequent recovery. The curves of the blood nonprotein nitrogen and creatinin (Fig. 3) also illustrate the fall of creatinin while the nonprotein nitrogen was still rising, this serving as a valuable prognostic sign of beginning improvement. A blood creatinin of more than 5 mg. almost invariably indicates a fatal outcome in a comparatively limited time, the only exceptions being cases in which the retention is due to some acute renal condition.[10] The remarkable return to normal in this case from a retention of 8.7 mg. is explained by the acuteness of the process, with prompt elimination or removal of the fat from glomerular vessels.

Recovery from the acute diabetic symptoms was fairly prompt, illustrating well the value of the controlled use of insulin. Curves of insulin used daily and blood sugar determinations were plotted (Fig. 4). The pneumonic signs in the right base and the subsequent right abdominal symptoms and sepsis gradually cleared without operation.

PERSONAL EXPERIENCES IN AN ATTACK OF YELLOW FEVER *

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In July, 1919, I was asked by the Peruvian health department to investigate and report on an epidemic of fever prevailing in Piura, the capital of the department of Piura in the northern section of Peru. I undertook the task with some degree of apprehension owing to the fact that I was not immune to yellow fever, and that, to a certain extent, I shared the popular fear of this much dreaded disease.

Both my knowledge of and experience with yellow fever were limited at that time, but I had had the good fortune to be associated with Surg. S. B. Grubbs of the United States Public Health Service, who was on the Panama Canal in the capacity of chief quarantine officer during the time that I was there as assistant chief health officer. Our discussions of yellow fever began when an engineer from the old Steamship *Jamaica* arrived at Balboa with an attack of yellow fever contracted a few days previously in Guayaquil. During this and subsequent discussions, Grubbs emphasized two points as of the greatest importance in the care and management of cases of yellow fever: (1) that the patient should be kept quiet in bed and that he should be left where he was taken sick and not moved if it was possible to avoid it; (2) that no food of any kind should be given until the stage of convalescence had been reached. These two all-important points were also emphasized by the late Dr. Henry R. Carter (who, in my estimation, was the greatest authority of the age on matters of yellow fever) after he joined us in the Peruvian yellow fever campaigns of 1920 and the first part of 1921.

It is quite difficult for a person to state with any degree of certainty just when and how he has been inoculated with the germ of yellow fever. In this day, thanks to the brilliant work of Dr. Noguchi, we know practically all the intricate details of the etiology of the fever; the usual method of transmission was previously worked out by the United States Army Medical Board in Cuba. So there seems to be little to add in this connection; however, there are certain facts connected with my case that may be of interest.

Immediately after landing at Paita I was shown a number of sick persons who manifested all the clinical symptoms associated with yellow fever. Piura, however, was the place reported to be the most seriously affected by the, as yet, officially undiagnosed fever epidemic. We therefore proceeded to Piura, where, after the usual preliminaries, we began an immediate investigation of the nature of the existing outbreak. After a few days of general observations in the company of a group of local physicians, we made a detailed clinical study of cases of the fever in the lazaretto; at the time there were nine of these in varying stages and of different degrees of severity. In order to exclude the possibility of malaria, blood smears were taken from the nine patients; these were treated with Wright's stain and examined for plasmodia of malaria. All proved negative so far as microscopic evidence of malaria was concerned. The symptoms manifested by these patients in the aggregate were quite typical of yellow fever.

During the course of the examination, I noted that my index finger was stained at the tip with blood from these patients. I attached no importance to this, though at the time of leaving, when I cleansed my hands with alcohol, I experienced a very decided sting in that finger. Whether this was the manner in which I was infected with yellow fever, or whether I was bitten by an infected *Stegomyia* mosquito about the same time, I cannot say with certainty. During my convalescence another incident occurred which would suggest the possibility of infection by inoculation of a small quantity of infected blood. After a necropsy on a yellow fever patient, Dr. Chiri punctured one of his fingers with the needle with which he was sewing up the body. Four and a half days later he developed a moderately severe case of yellow fever, from which he fortunately recovered. Here again there is the same uncertainty concerning the method of infection as in my case, but there exists the same possibility of a mechanical infection by direct inoculation. Instances of this kind are rare and their occurrence improbable, but the facts are as stated and are submitted for what they may be worth.

Four or five days after the clinic in the yellow fever lazaretto, I awakened about 2 o'clock in the morning with a strange feeling of uneasiness which is difficult to explain. Late in the morning I began to have a peculiar type of sore throat unlike any I had previously experienced, and added to this there appeared to be a taste in my saliva as if I had blood in my mouth. Very soon after this my head began to feel queer, and a moderate headache developed. This was almost immediately followed by a pronounced soreness in the back, which at first seemed to be localized in two large tender spots over the kidney region. At that time—about midday—I was in the office fighting against the conviction that I had yellow fever, and preparing to go out to one of the hospitals to perform a necropsy on a patient who had just died. I left instructions for my horse to be sent to the house where I was rooming, and went over to make some preliminary preparations;

10. Myers, V. C., and Killian, J. A.: Prognostic Value of Blood Creatinin in Nephritis, Am. J. M. Sc. 157:674 (May) 1919.

* From the International Health Board of the Rockefeller Foundation.

soon after reaching my room I began to feel more and more general discomfort and distress and I lay down on the bed, from which I did not get up again until I was convalescing from an attack of yellow fever.

From the time that I lay down, the prostration was so great that I felt unable to make an effort of any kind; I did not even attempt to undress myself for bed. The symptoms from that time on were mainly a general distress, with a sensation of abdominal distention and a tenderness in the epigastric and liver region about the lower right costal margin anteriorly. This distress was especially notable in making the effort to speak. The vibrations from every syllable pronounced created a distinctly painful, distressed feeling in the epigastric region. Light percussion or palpation over the abdomen was decidedly annoying and painful.

The fever did not run especially high, rarely going much over 39 C.; but there seemed to be a rather pronounced toxemia, since about the end of the second day it was noted that the heart beat was irregular and a beat would be skipped occasionally. This was first noted on the thirty-second beat, but it gradually increased in frequency until on the third and fourth day there was an irregularity manifesting itself, as the native physician put it, "in false passes" from the fourth to the seventh beat. During the second day the kidneys almost ceased functioning: there was not over 400 cc. of urine passed during the second twenty-four hours. The prostration continued to be very profound up to the fifth day. The nervous manifestations alternated between a slight excitability and depression resulting in moments of unconsciousness, delusions, and a passing from weird dreams of floating off in space to others of falling down over precipices into deep valleys, and of landing beside a black river and looking out on a sea of impenetrable blackness, where shore line and infinity seemed to meet, and beyond which there appeared to be nothing but infinite blackness and the end of everything. Here a nondescript individual in a canoe emerged from the blackness and offered to take me over, but I decided against going. This dream apparently took place at the time of the crisis, when a slight mechanical stimulation kept up the heart action sufficiently to tide me over to the beginning of improvement.

The main features of my care and treatment were absolute quiet in bed; the withholding of foods of all kinds until the seventh or eighth day; the administration of a preliminary cathartic, which, in this case, consisted of magnesium citrate, and of small quantities of water as frequently as possible without provoking nausea, as well as a certain amount of orange juice and lemon juice, and an occasional dose of an elixir similar to the elixir of iron, quinine and strychnine. At the moments of the greatest feeling of depression, small doses of whisky or brandy were given, which seemed to relieve the exhaustion and the labor of breathing. There are moments when one experiences considerable difficulty in breathing. It seems to be a struggle.

The convalescence appears to be quite rapid when it sets in, but to the average person who is strong physically, this is dangerous in that he has a false sense of well being and a desire to get up too soon. The irritation in the stomach, which is a result of the congestion, often creates a sensation of acute hunger in convalescence which should be carefully guarded against on account of the unreadiness of the stomach mucosa to handle coarse or solid foods within a period of many days after recovery. In my case, some ordinary food was eaten together with a soup containing some fibrous vegetables, and it was at once noted that this created a painful feeling in the stomach. If one takes into consideration the condition of the mucous membranes, it will be readily understood how this might even result in a hemorrhage.

I attempted work the twelfth day after the onset of the disease, and carried on for about three days. This resulted in a collapse, an exacerbation of the toxic myocarditis, and a return to bed with another period of prostration and nervous manifestations. In this instance, instead of the anuria there was, for a period of a little more than twenty-four hours, a pronounced polyuria resulting in an excretion of approximately 3 liters of urine in that period. The recovery from this collapse was uneventful; the only thing of note is that it required a period of several weeks to get back to a feeling of normality. During this period there occurred a yellow discoloration of the skin, conjunctiva, and mucous membranes with some desquamation and a slight loss of hair.

CONCLUSIONS

There are five important features to be observed in the care and treatment of a case of yellow fever:

1. There must be absolute rest in bed from the first onset of symptoms until a definite, safe convalescence has been established. No patient should be moved from the site where he falls sick, though when it seems absolutely necessary to transfer him to some place where he can have better care, this is allowable if he is moved early in the second day of his illness. He should never be moved late in the second day or after that time.

2. Foods of all kinds, even milks or albumins, should be withheld until convalescence is established.

3. A cathartic which is not too drastic should be given as early as possible after the onset of the first symptoms. The principle in this is to remove practically everything in the intestines so as to avoid having an accumulation of material to add to the profound toxemia of the average yellow fever case.

4. The patient should be given all the water that he can possibly drink without producing vomiting. This is best done by administering small quantities at frequent intervals. Feeding small pieces of cracked ice is a great help in quieting the irritation in the esophagus and stomach. Soon after the first or second day, plain water has a tendency to increase the sensation of nausea, and then it becomes necessary to choose some alkaline water that is more readily tolerated by the patient. Usually vichy answers this requirement as well as any other form of water known.

5. All visiting should be prohibited, since the patient of this type does not have sufficient strength to talk or to make any extensive effort at thinking.

In addition to these measures, one might suggest as stimulants in the periods of depression small doses of a good grade of whisky or brandy and also small doses of champagne with cracked ice. And, as a final word, the diet of the convalescent should consist of light, soft food for a period of from one to two weeks in order to be on the safe side.

The treatment here outlined was naturally employed at a period before the Noguchi anti-yellow fever serum was made available. It still will hold in territories in which such serum cannot be had.

61 Broadway.

Clinical Notes, Suggestions and New Instruments

OBSTRUCTION AND PERFORATION OF SMALL INTESTINE DUE TO A COPROLITH

WENDELL DOWNING, M.D., LE MARS, IOWA

Obstruction or perforation of the small intestine due to coproliths is of rare occurrence. Few textbooks mention such a condition, and a search of the literature shows less than half a dozen authentic cases reported.

Coproliths are masses of inspissated feces combined with cholesterol and bile. They are to be differentiated from true enteroliths, which are foreign bodies composed of earthy salts formed about some nucleus, such as a fruit stone. The terminal ileum is the most common location for fecal masses in the small intestine because of its smaller diameter and its folds of mucous membrane. Diverticula (Meckel's and others) serve as the site of origin of most fecal masses. From these pouches the mass may be dislodged, or it may extend into the lumen of the small intestine, resulting in obstruction or perforation.

Coproliths are more common in the colon, because of the frequency of diverticula in the large bowel. The semisolid and solid nature of the contents of the colon explains the numerous fecaliths that accumulate in the colonic haustra.

The following case of obstruction and perforation of the small intestine due to a coprolith came under observation:

A white woman, aged 21, married, had had no previous illnesses, no abdominal or other symptoms and had always been very well and strong. One month before the present illness, the patient was confined at her first pregnancy, with normal labor and puerperium. She left the hospital on the twelfth day, feeling well. On the twenty-second day, ten days after going home, she began to flow and flowed hard for four days. She passed many clots and had sharp pain in the upper part of the abdomen, the pain radiating toward the umbilicus. She did not vomit; the stools contained some dark blood at that time. She had no chills or fever. The uterine hemorrhage was severe enough to cause her to become pale and weak. From the twenty-sixth to the thirtieth days, she felt better and had very slight bleeding.

At noon on the thirtieth day, the patient developed a very severe pain in the upper part of the abdomen; it radiated across the abdomen, was colicky in nature and doubled her up. The pain continued and, by 6 o'clock, was felt over the entire abdomen. She then vomited several times. When seen at 6:30, she was in severe pain; she was pale, and the abdomen was moderately distended and showed marked tenderness and rigidity. The temperature was 100; the pulse was 130, and the respiration, 30. Pelvic examination was unsatisfactory on account of the tenderness. The hemoglobin was 40 per cent (Dare) and there was a leukocytosis of 21,000. She was given one-fourth grain (16 mg.) of morphine hypodermically.

Immediate operation was advised but was refused by the patient. That night and the following morning fluids were given by bowel. She was kept in the Fowler's position and nothing was given by mouth. She had no additional opiate. The pain was moderate, and she vomited only once. The following morning the general condition was somewhat improved; the pulse was 110 and the abdominal findings were unchanged. The leukocytosis had decreased to 15,000. At 5 p. m., twenty-nine hours after the onset, a laparotomy was performed, under ether anesthesia.

An incision was made in the right rectus, at the level of the umbilicus. The peritoneum was dark; a large quantity of cloudy fluid with the colon bacillus odor was present in the peritoneal cavity. The small intestine was moderately distended and was covered with fibrinous exudate. The pelvic organs were normal, and the uterus was of normal size for the fourth week post partum. A small quantity of liquid intestinal content was present between the loops of the ileum. About 30 inches (76 cm.) from the cecum, two loops of ileum were adherent by fibrous adhesions, and a soft mass was felt in the proximal loop. The ileum above this was distended, and at the site of the mass was a perforation 8 mm. in diameter, partially covered by plastic exudate. The perforation was located on the antimesenteric surface of the ileum, the lower edge extending partially through the wall of the adherent loop. Liquid intestinal contents were escaping through the perforation. No diverticula were found.

The perforation was enlarged and the mass removed. The opening was closed transversely by catgut and silk suture, the adherent loop of ileum being sutured over the perforation as a patch. The peritoneal cavity was irrigated with physiologic sodium chloride solution and a cigaret drain was placed in the culdesac. The upper portion of the abdomen was not explored, on account of the poor condition of the patient.

The mass removed was roughly spherical, and was 2 cm. in diameter; it was black, shiny and of doughy consistency, and had a granular surface. On exposure to the air for two days, the mass became dry and brittle and pulverized readily. It was of uniform composition throughout. A chemical analysis made by a Chicago laboratory showed the mass to be composed chiefly of inspissated fecal matter with a small quantity of cholesterol and bile. The diagnosis made was inspissated fecal mass or coprolith.

The origin of the mass removed from the lumen of the small intestine could not be definitely determined. No diverticula were found. The fibrous adhesions and the narrowing of the intestinal lumen could not be explained, unless they were secondary to the impaction of the mass at that site.

The patient was very ill for the first four days, but she recovered rapidly and the wound was healed by the twenty-fourth day. She had no further uterine hemorrhage. She has had no other abdominal or intestinal symptoms in the two years that have elapsed since the operation.

BALSAM OF PERU IN MASTOID SURGERY

JOHN LESHURE, M.D., NEW YORK

The use of Peruvian balsam is certainly not new, but judging from inquiries that I have made, this valuable drug has not the general acceptance that its merit warrants.

At the completion of the mastoid operation and after the middle ear has been flushed through the aditus, the wound is tightly packed with a gauze pad saturated with a mixture of equal parts of balsam and alcohol. This is removed one or two minutes later and serves the double purpose of sterilizing the wound and checking oozing. The wound is then lightly packed with one-half inch strip gauze moistened in 1:5,000 solution of mercuric chloride and the balsam-alcohol mixture. Over this, plain gauze pads moistened in mercuric chloride solution are placed with rubber tissue over all and bandaged as usual. The first dressing is made forty-eight hours later, and this interval is observed for the first three dressings, at the end of which time the wound is usually clean and lined with healthy granulations.

Later dressings are done at three day intervals without the rubber tissue, and healing is usually complete in four or five weeks. This dressing is powerfully antiseptic, nonirritating, nontoxic and of an agreeable odor, none of which advantages are possessed by iodoform, and balsam is strongly recommended as a substitute for the former drug.

More than 200 cases have been dressed this way with excellent cosmetic results, dry middle ears and normal hearing.

423 Convent Avenue.

Efficiency of Health Service.—It is apparent today that few, if any, American cities, whether of 40,000 or 6,000,000 population, approach nearer than 80 per cent in performing the elementary public health jobs, that the medium cities in only a few instances reach 60 per cent of the desirable accomplishments and that the lower third of our cities hardly attain a level of 40 per cent in service. On the basis of present day American standards of salaries and materials, even an 80 per cent performance in preventive health work will cost a community $2.50 per capita.—Emerson, Haven: *Hospital Social Service* **13**:109 (Feb.) 1926.

Special Article

THE TECHNIC OF MEDICATION

A SERIES OF ARTICLES ON THE METHODS OF PRESCRIBING AND PREPARING, THE INDICATIONS FOR, AND THE USES OF VARIOUS MEDICAMENTS *

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(Continued from page 485)

MEDICATION OF THE RESPIRATORY AIR CURRENT

For medication of the respiratory tract, the respiratory air current is the most convenient and direct mode of access, and for the lower respiratory tract the only means available to the general practitioner. Direct application to the mucous membrane of the larynx by means of the laryngeal mirror requires special and rather delicate manipulations; hence it is suitable only for the trained hand of the specialist. Intratracheal injection carried out by means of a syringe with a long and curved nozzle, though it may be useful for the treatment of intratracheal burns from inhalation of war gases, is too dangerous for ordinary use because of liability of injury to the pulmonary parenchyma, as has been shown by Corper.[24]

The following general principles may serve for guidance in the choice of sprays and inhalations:

1. The finer the particles, the deeper into the respiratory tract extends their action. Hence, for medicating the upper air passages, coarse sprays should be used; for the lower air passages, fine sprays must be employed. Only gases enter the alveoli; and these are so actively absorbed as to be liable to produce general rather than local action, with the exception of highly irritant gases, such as chlorine, which cannot be inhaled in sufficient concentration to produce more than local effect. Nonvolatile or slightly volatile bodies, on the other hand, are not so actively absorbed from the respiratory tract; and these, more or less medicated or flavored, are useful for topical action.

2. Moist inhalations are preferable in dry catarrh; "dry" inhalations in catarrhal conditions with profuse secretion. Most prominent among the latter class of inhalations are the vapors of volatile oil, which tend to lessen secretion and antagonize offensive odors of the sputum and breath.

3. Steam inhalations are grateful in acute inflammatory conditions of the respiratory passages: they soften mucus, favor expectoration, diminish irritation and lessen cough. They should not, however, be immediately followed by exposure to cold dry air. For chronic catarrh, hot inhalations are not suitable. They increase the sensitiveness of the membrane on exposure to cold. Cold inhalations, by means of nebulizers, are here more advantageous.

4. In acute dry inflammatory conditions of the respiratory passages, not only steam but also "nebulized" liquid petrolatum, plain or mildly medicated, may be usefully employed by inhalation and is safer than steam inhalation, when the patient does not stay indoors afterward. In chronic inflammation with profuse secretion, more strongly medicated petrolatum sprays or volatile oil vapor inhalations are resorted to.

5. Of course, whenever possible, substances of an agreeable odor should be preferred for medication of the respiratory tract.

6. We cannot reach, by inhalation, tissue not exposed to the air current. In no disease have inhalations been more abused than in pulmonary tuberculosis. Even though it be a disease of the lungs, tuberculous tissue is completely outside the air passages, as the tuberculous process obliterates those that were present in the involved area. Inhalation is of value in tuberculosis to modify the accompanying bronchitis, or to lessen the offensiveness of sputum; but against the tuberculous process itself it is impotent.

There are five different methods of medicating the respiratory air current: (1) gas inhalation, (2) steam inhalation, (3) vapor inhalation, (4) spray inhalation and (5) smoke inhalation.

1. *Gas Inhalation.*—It might seem as though the respiratory tract, constructed as it is for the absorption and elimination of gaseous bodies, might be quite readily medicated by such agents. This is, however, by no means the case. Irritant gases, so-called irrespirable gases, such as chlorine, ammonia or formaldehyde, call into action defensive reflexes, such as closure of the glottis and temporary suspension of respiration, which protect the lungs against injury as well as against therapeutic action. Nonirritant, respirable gases, on the other hand, are in general quite devoid of local action, passing through the pulmonary epithelium and being so readily absorbed by the blood stream that they develop general rather than local action.

In the dilution in which irritant gases can be inhaled, their action is expended on the upper portion of the respiratory tract. Thus, inhalation of ammonia, most pleasantly perhaps by making use of the aromatic spirit of ammonia, which can now be obtained in glass capsules, is a time honored analeptic by causing reflex stimulation of the mucous membrane of the nose.

Therapeutic chlorine inhalation has of late acquired such notoriety that it may deserve special consideration.

Although sterilization of the mucous surfaces is not achieved, there can be no doubt that many bacteria are killed. There are, however, other actions that may be even more important in securing therapeutic results. One of the first actions of the chlorine treatment is to increase noticeably nasal and bronchial secretion, causing productive coughing and blowing of the nose, and this cleanses the membrane. The action of any irritant, like chlorine, on the capillaries is to cause a primary brief constriction followed by a much longer dilatation. Thus, a hyperemia of the affected mucous membranes is produced which is conducive to recovery. There is also stimulation of phagocytosis and of the production of antibodies. In addition to this, chlorine is a powerful oxidizing agent, possessing in a high degree the property of decomposing toxins. It is impossible to state the relative importance of these different factors in alleviating and curing respiratory infections.

The concentration of chlorine that will give the best results varies from 0.013 to 0.015 mg. per liter. Experience has shown that anything higher than 0.015 mg. per liter is apt to be irritating and may produce some cough even in normal persons. It has also been found that, when the operator remains in the gassing chamber for two or three hours even at the optimal concentration for a treatment of one hour, he usually develops

* This is the eighth of a series of articles on "The Technic of Medication." When completed the articles will be assembled in book form.

24. Corper, H. J.: Pulmonary Aspiration of Particulate Matter, Normally and During Anesthesia, J. A. M. A. 78: 1858 (June 17) 1922.

some slight cough which may last for a day or two. On the other hand, it has been found that a concentration of 0.009 mg. per liter is of practically no therapeutic value, even when the treatment is prolonged for two hours. This means that, in order to obtain satisfactory results, the concentration of chlorine must be maintained for the entire hour within very narrow limits; and that, if the concentration is not so maintained, failures will result that can only discredit the treatment.

Vedder and Sawyer have found that hay-fever, asthma, pneumonia and tuberculosis cannot be benefited by this treatment and that the exposures to the treatment may be harmful in such cases. There is more difficulty in treating "head colds," because the swelling of the mucous membranes stops the air passages and prevents free access to the chlorine.

A few patients appear to be hypersusceptible to the effects of chlorine. When in any case it is evident that the effect of the treatment is far more irritative than it should be, the patient should not remain for the full hour. It is believed that of the small percentage of patients who receive no benefit from this treatment, a part are hypersusceptible, and the remainder suffer from sinus infection, the affected parts being inaccessible to the gas.

2. *Steam Inhalation.*—The simplest apparatus for the production of steam inhalation is a wide-mouthed receptacle, such as an ordinary pitcher, giving a surface of water of not less than 4 or 5 inches in diameter. Into this is placed hot water so as to leave an air space of at least 4 inches above the level of the water. The medicament is added, and stirred in for a few seconds. The vessel is then covered with a cone of paper or similar material, the steam being allowed to escape through the truncate apex, over which the mouth is placed; or else the head may be held over the mouth of the pitcher and a towel applied over all. To inhale effectually, the patient, after having drawn the vapor into the mouth, should follow the suction effort by a deep inspiration. To infants, especially in the treatment of bronchopneumonia, steam inhalation is given by means of a vaporizing apparatus placed near the head of the crib, best with the aid of a steam tent. When a pitcher is used for the purpose, as in the treatment of laryngitis, it is very important to avoid frightening the small child, which is best done by the mother or nurse holding the babe's face close to her own, and gradually, possibly while making a game out of it, lowering her own and the little one's face toward the steaming pitcher, covering or cone being dispensed with.

Inhalation of steam acts mainly by warmth and moisture, which is relaxing and soothing. Its use is limited, however; because, in the nose, the imbibition of moisture tends to cause swelling of the turbinate bodies, thus increasing obstruction to respiration; and, because in the whole of the respiratory tract, warmth and moisture make the membrane so sensitive that their irritation is apt to become aggravated on subsequent exposure to cold dry air. Hence, unless the patient is confined to a room at even temperature or will stay in the room for at least an hour after the inhalation, such treatment should not be prescribed. The best time for use of such inhalations by an ambulatory patient is in the evening before going to bed. Steam inhalations are useful in acute laryngitis, in the first stage of acute bronchitis, and at times in bronchopneumonia. As previously stated, they are rarely indicated in chronic affections.

As an example of a steam inhalation for acute laryngitis, tincture of benzoin may be prescribed, a teaspoonful to half a pitcherful of hot water, essentially to flavor the steam—we could hardly speak of medication from the small amount used. The tincture of benzoin is more pleasant than the more commonly employed compound tincture of benzoin, which, as it also contains aloe, develops the unpleasant flavor of this drug as soon as the more volatile pleasant flavor of the benzoin has been dissipated.

3. *Vapor Inhalation.*—This is the technical term applied to the drawing into the respiratory system of the emanation given off from volatile substances at ordinary room temperature. The induction of general anesthesia by means of volatile agents, such as ether or chloroform, is an example of vapor inhalation.

Inhalation of vapor or gas offers one of the most rapid means of inducing systemic action. The lungs are a large sponge with air passages on one side and blood vessels on the other side of a thin membrane, presenting an enormous absorbing surface of great vascularity. Volatile substances are absorbed so rapidly from this surface that, for these, inhalation furnishes an almost direct admission into the blood. Most substances absorbed by the lungs are also excreted by them, so that the rate of absorption depends on the relative concentration of the substance in the air of the air vesicles and in the blood. Accordingly, when the air contains more of vapor than the blood, the substance passes into the blood; as soon as the conditions are reversed and the blood contains more of the drug than the air of the alveoli, it commences to pass backward. Hence the dose by inhalation depends on the concentration of the vapor and the length of time of its administration. On account of the promptness with which the agent can be made to pass either into or out of the blood, we have a very nice control of the quantity present in the blood by varying the concentration of the vapor. This is the reason why certain substances, as the general anesthetics, such as ether, chloroform, nitrous oxide or ethylene, are always administered by inhalation. Inhalation of amyl nitrite, obtainable in glass capsules (preferably covered with a cotton and gauzelike wrapping to take care of the splinters of glass), which are crushed in a handkerchief, offers the most rapid available method of securing nitrite action.

One of the simplest devices for vapor inhalation is the ordinary chloroform inhaler, on which the volatile medicament is dropped and through which the respired air is drawn, thus becoming impregnated with the vapor. Simpler still is the use of blotting paper or of a handkerchief.

In acute inflammatory conditions of the respiratory tract, the patient is apt to suffer from irritation, if too large a quantity of volatile oil is dropped on the inhaler or if the time of inhalation is extended too long. Ordinarily from 10 to 20 drops of a volatile oil or mixture is added to the absorbent material of the inhaler and the inhalation is continued at first about ten minutes every two, three or four hours. In the later stages of the disease, and after the patient has acquired tolerance, the inhalation may be continued for one-half or one hour at a time or longer. Often, if the use of such inhalation has to be continued, it is found that an inhalant that at first proves useful later seems to lose

its effect. Under these circumstances, it is well to remember the general therapeutic fact that tolerance is established toward therapeutic as well as noxious irritation. Hence, to obtain continued benefit, we at times have to substitute a new agent, a succedaneum.

As vapor inhalation, we may prescribe menthol, 20 per cent, in alcohol. Ten drops of this may be inhaled from a sponge inhaler, or a handkerchief. Menthol is analgesic and lessens secretion; hence it is especially useful in acute catarrhs with profuse secretion. There are very simple "menthol inhalers" on the market that serve very well for medication of the nose. A vapor inhalation, to act as a deodorant and sedative in chronic bronchitis, in pulmonary abscess and gangrene, is creosote, spirit of chloroform, and alcohol, equal parts. One places 15 drops in the inhaler and inhales for from five to fifteen minutes every three hours.

4. Spraying, also called nebulization, atomization and pulverization, is the mechanical subdivision of liquids into exceedingly fine particles, constituting a veritable cloud or mist (*nebula*), which is to be inhaled. The apparatus for producing these sprays may be obtained with rubber hand-bulbs, useful for home treatment, while, for physician's office use, they are best driven by air drawn from a reservoir in which it may be compressed by a force pump. We should distinguish between two kinds of sprays, the coarse and the fine. The coarse kind, as previously stated, is to be preferred in the treatment of nasal and pharyngeal conditions. It is not only superior for the dislodgment of secretions, but affects the deeper passages less. Fine subdivision, on the other hand, is necessary in the treatment of the larynx and the bronchi, because the coarse is too heavy to be carried deeply by means of the respiratory air currents. It is probably quite impossible for even the finest droplets to reach the alveoli of the lungs.

Sprays enable us to obtain a larger variety of therapeutic effects than can be secured by other forms of inhalation.

Demulcents may be used, as freshly prepared decoction of althea or an emulsion composed of from 1 to 5 per cent of olive oil or sweet almond oil. If this is prepared with bitter almond water, a certain amount of local analgesic action may be secured in addition to the flavoring.

Expectorant action—by thinning the mucus—may be obtained by inhalation of alkaline fluids, such as 0.2 to 2 per cent solution of sodium or potassium carbonate or an alkaline mineral water. Sodium chloride solutions, unless extremely dilute, seem to be somewhat irritant in acute catarrhs of the respiratory mucous membrane.

Astringent action may be attained from 0.2 to 3 per cent solution of tannic acid, or by 2 per cent alum, either of which might be dissolved in water and glycerin, equal parts.

An antispasmodic inhalation for asthma recommended by Edens is composed of:

	Gm. or Cc.
Atropine sulphate	0.03 to 0.05
Cocaine hydrochloride	0.3 to 0.5
Potassium sulphate	0.3 to 0.5
Glycerin	3.0
Solution of epinephrine (1: 1,000) to make	30.0

If the mucosa is very sensitive, potassium sulphate may be eliminated and only 15 cc. of epinephrine solution used and enough physiologic sodium chloride solution to make 30 cc. The epinephrine solution is then best kept separately, and equal parts of the two solutions are mixed just before use. This inhalation is best administered by an inhaler driven from an oxygen tank, though other inhalers might be used less successfully. The patient inhales deeply with open mouth for one minute, and then rests for from three to five minutes so as to give the remedy a chance to act and an opportunity to penetrate more deeply into the bronchi at the next inhalation. Generally three or four inhalations of one minute each suffice to make respiration free and easy. During the inhalation, the eyes should be closed so as to prevent any of the material entering the conjunctiva. After the inhalation, the mouth should be rinsed with physiologic sodium chloride solution. The inhalations may be repeated as often as desired, as the amount absorbed, in view of the fine degree of subdivision, is exceedingly small. Hence, it is permissible to use the inhalation even at the beginning of mild attacks; and it seems that such aborting of each attack has a favorable influence on their repetition.

In hay-fever, in nervous rhinorrhea, and in all other conditions of the respiratory mucous membrane characterized by profuse secretion, one should in general avoid prescribing aqueous sprays. In such conditions oil sprays are better tolerated, and light liquid petrolatum is probably the most useful vehicle for this purpose. If a small quantity of volatile oil is added to liquid petrolatum, say, 1 per cent, the spray is soothing and applicable to acute catarrhal inflammations. If larger quantities are used, e. g., 25 per cent, the application becomes stimulating and useful in chronic conditions. In the prescribing of oil sprays, the solubility of medicinal agents in liquid petrolatum is of importance. As a general proposition, substances soluble in oil are soluble in liquid petrolatum. The National Formulary has a number of formulas for oil sprays, under the Latin heading Nebulae.

Thymol spray (N. F.) contains 1 per cent thymol. Eucalyptol spray (N. F.) contains 5 per cent eucalyptol. Menthol spray (N. F.) contains 2 per cent menthol. Compound menthol spray (N. F.) contains 1 per cent menthol, 1 per cent camphor, 0.5 per cent methyl salicylate, 0.2 per cent eucalyptol and 0.2 per cent oil of cinnamon. Aromatic oil spray (N. F.) contains all the ingredients of the compound menthol spray, but less of them and several other ingredients besides. It is unnecessarily complex.

For the sake of securing mastery over our prescriptions, so as to be able to modify them readily to meet the conditions of practice as they arise, the National Formulary preparations being neither very strong nor very mild, it is best, perhaps, to get into the habit of writing each ingredient and adjusting the strength in accordance with the indications. Camphor and menthol, of either or each from 1 to 2.5 per cent, with a flavoring of 0.5 per cent of volatile oil, as oil of cinnamon, in light liquid petrolatum might serve as an example. To this chlorbutanol, 1 per cent, might be added if analgesic action is desired. Epinephrine should not be added to mixtures containing volatile oil, as it soon becomes oxidized and discolored in their presence. If the vasoconstrictor action of epinephrine is desired, it is best to prescribe it separately.

A laryngeal inhalation should be administered to the patient while the anterior gauze-wrapped portion of the tongue is extended as far as possible out of the mouth and the operator compresses the nostrils to prevent nasal respiration, the patient inhaling deeply.

(To be continued)

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SATURDAY, FEBRUARY 20, 1926

HEREDITY AND OBESITY

The statement, frequently encountered, that obesity is merely the expression of an excess of intake of food over the bodily expenditures, is far from satisfactory to a critical student of the subject. There are at least a few obese persons who are fairly active in their habits and frugal in their diets; these, Du Bois [1] remarks, furnish us with the true problem of obesity. A question that obviously presents itself in this connection concerns the basal metabolism of the aberrant types. Do they differ from the normal by carrying out their fundamental exchange of energy more economically? This has been a question not easily answered, because of the difficulties of making tenable comparisons between the different persons concerned.

The obese carry a considerable amount of inactive adipose tissue in their bodies. Consequently, if the metabolism per unit of weight were used as a standard of comparison, the fat person would exhibit a low metabolism. Other modes of comparison also have inherent fallacies. However, when critical regard is directed to these circumstances it appears to be now firmly established that the basal metabolism in obesity is normal—not unduly lowered. The course of the metabolism of plethora, in contrast with the basal exchange, may be somewhat different. It has already been pointed out in THE JOURNAL [2] that, according to Strouse [3] and his collaborators in Chicago, the obese conserve the body fat and thus accumulate more, whereas normal and thin persons use up their food fat instead of storing it. Assuming a peculiarity of metabolism of such a sort, one naturally inquires whether adiposity of the ordinary form is inherited.

Most physiologists are disinclined to admit any hereditary factor in obesity. They insist, with Tileston,[4] for example, on attributing the large incidence of obesity in certain races entirely to their manner of life. This view has been criticized by Davenport.[5] In a statistical inquiry [6] among a large group of families, it appeared that both constitutional and cultural factors play a part in determining abnormalities of build. The constitutional factors may be regarded as not less important in determining the result than the cultural factors. According to Davenport there are at least three biotypes (or elementary species) of human beings in the population of this country characterized by special conditions of build. There is a slender, a medium, and at least one fleshy biotype. In some families there is only one factor, and in others there are two or more factors involved in build. In some cases these idiosyncrasies of build may be due to endocrine idiosyncrasies; in other cases, perhaps, to more general peculiarities of metabolism. These are rather indefinite generalizations on a subject, obesity, that is perhaps discussed by the laity and public press more frequently than any other nutritional disorder. As Du Bois has significantly remarked, the large amount of public interest is in marked contrast to the small amount of scientific information. We do not yet know, he adds, why certain persons grow fat.

1. Du Bois, E. F.: Basal Metabolism in Health and Disease, Philadelphia, Lea and Febiger, 1924.
2. The Metabolism in Obesity, editorial, J. A. M. A. **85**: 1731 (Nov. 28) 1925.
3. Strouse, Solomon; Wang, C. C., and Dye, M.: Studies on the Metabolism of Obesity, II, Basal Metabolism, Arch. Int. Med. **35**: 275 (Sept.) 1924. Wang, C. C.; Strouse, Solomon; and Saunders, A. D.: Studies on the Metabolism of Obesity, III, The Specific Dynamic Action of Food, ibid. **34**: 573 (Oct.) 1924; The Metabolism of Obesity, IV, The Distribution of Energy Production After Food, ibid. **36**: 397 (Sept.) 1925.
4. Tileston, Wilder, in Barker's Endocrinology and Metabolism **4**, 1922.
5. Davenport, C. B.: Body Build and Its Inheritance, Washington, Carnegie Institution, 1923.
6. Davenport, C. B., and Nelson, Louise A.: Heredity and Culture as Factors in Body Build, Pub. Health Rep. **40**: 2601 (Nov. 27) 1925.

BOVINE AND HUMAN TUBERCULOSIS

In 1898, Theobald Smith distinguished the bacillus of bovine tuberculosis as a separate type from that of human tuberculosis. Robert Koch in his earlier publications had considered the bacilli of the two diseases identical, but at the International Congress on Tuberculosis in London in 1901 he retracted his first expressions and went so far as to present evidence not only that the germs were of different type, but also that the bovine bacillus was incapable of infecting man. These views, coming from the world's most distinguished investigator in tuberculosis, had the good effect of raising a perfect storm of discussion, and stimulating exhaustive researches on the intercommunicability of the two diseases by special and official commissions in England, America and continental Europe. The investigations proved beyond question that the organism causing tuberculosis in cattle is also capable of infecting human beings. This was true in spite of the fact that certain differences in type were recognizable. The chief means of distinction proved to be in the virulence of these bacilli for cattle and the rabbit. As a general rule the bacillus of bovine tuberculosis was highly virulent for these animals, while that of human pulmonary tuberculosis was not. It was and still is conceded by all that considerable variability exists in strains of both types of bacillus, and

that in some cases the type, bovine or human, is quite indeterminate. Calmette[1] summarizes the conclusion reached in the majority of recent works in the view that "there exists only one race of tubercle bacilli in mammals (*Bacillus tuberculosis-mammalium*), and that its adaptation to the body of man or of cattle has brought about its separation, not absolute, however, into two types of bacilli presenting certain differential characteristics, the human type and the bovine type."

Isolated investigations carried on since the work of these commissions have not appreciably changed the prevailing views on the relation of bovine to human tuberculosis. The figures given by Park and Krumwiede[2] probably still represent with fair accuracy the situation in the United States. According to these investigators, all pulmonary tuberculosis is caused by the human type of bacillus, while about one tenth of the tuberculosis of bones, joints and lymph nodes in adults and a fourth of tuberculosis of this type in children is due to the bovine bacillus. The figures of the English Royal Commission on Tuberculosis and the Tuberkulose Arbeiten aus dem kaiserlichen Gesundheitsamte were in essential agreement. It appears, too, that from 6 to 10 per cent of deaths from tuberculosis below the age of 5 years are to be attributed to the action of the bovine type of bacillus, chiefly as a result of miliary tuberculosis and tuberculous meningitis. It is noteworthy that the two types are to a certain extent mutually exclusive. Pulmonary tuberculosis due to the human type, and the so-called surgical tuberculosis due to the bovine type of bacillus, are seldom found together.

The manner in which bacilli of bovine tuberculosis reach man has also been exhaustively studied. For an understanding of this it is necessary to know something of the extent and character of bovine tuberculosis. The disease is now endemic in all parts of the world. So variable, however, is the incidence in different localities, even in the same country, that a figure for average incidence has little meaning. The average figure obtained by the tuberculin reaction is in the neighborhood of 5 per cent for the United States, but the figure is over 80 per cent for certain regions. On the other hand, in certain counties in which tuberculin testing is prescribed by local law or custom and certified herds are common, the figure is 1 per cent or below.

Tuberculosis in cattle menaces human beings because of anatomic characteristics of the disease which permit the bacillus to enter the milk. Meat under ordinary conditions is not dangerous. Tuberculosis in cattle, while usually a chronic disease, is more prone to generalization than in man. Extensive caseonodular tuberculosis, of the type seen best in the less immunized races in man, is common in cattle. Chronic fibroplastic and ulcerative tuberculosis also occur, however. In mid and late stages a cow may be as truly consumptive as man, with cavitation of the lungs, mucopurulent sputum, extensive ulceration of the intestines, and myriads of tubercle bacilli in the feces. From the feces the udder is readily contaminated. Much, if not most, of the contamination of milk has this origin. The cow, however, is peculiarly likely to develop tuberculosis of the mammary gland, much more so than the human mother. This occurs, according to Martel[3] and Ostertag,[4] in from 2 to 4 per cent of tuberculous cattle. Pearson found it in 8.75 per cent of 120 tuberculous cows in Pennsylvania. The lesion usually affects only one fourth of the gland, but milk from the corresponding teat in advanced cases may contain as many as 100,000 bacilli to the cubic centimeter. There is good evidence, too, that tubercle bacilli may reach the milk from a distant focus through the blood stream without involvement of the mammary gland.

Accordingly, where tuberculosis of cattle is extensive, tubercle bacilli in the milk supply will be common, and, as we have seen, these bacilli are capable of infecting children, who are the greatest users of milk. Physicians and laymen alike are familiar with the methods used to combat the menace. Pasteurization, if properly done, destroys the bacilli. Human fallibility and negligence, however, prevent nation-wide perfection in this procedure. But it must be emphasized that commercial pasteurization requires constant vigilance for active control. The London *Lancet*, commenting on recent studies of the safety of pasteurization, said: "If commercial pasteurization is to ensure freedom from bovine tuberculous infection, the plant must be so designed that the milk passing through the machine is really brought up to a temperature of 62.5 C. and maintained thereat for half an hour. Nothing else will serve." Furthermore, constant inspections are required to make certain that all of the milk passing through the apparatus is being subjected to the heat for the required period. The United States Department of Agriculture and many other public and private agencies have for years sought to eliminate bovine tuberculosis by condemning and slaughtering infected cattle.

Condemnation and slaughter are effective means of insuring a safe milk supply, as far as tuberculosis is concerned, but it must be realized that the price will be tremendous. Certain lifelong students of tuberculosis, notably Calmette, assert that the goal of a race of cattle free from tuberculosis is impossible to attain by this means, and that tuberculization of cattle is progressing today as surely as tuberculization of the

1. Calmette, A.: L'infection bacillaire et la tuberculose chez l'homme et chez les animaux, ed. 2, Paris, 1922, p. 307.
2. Park, W. H., and Krumwiede, Charles: J. M. Res. **27**: 109, 1913.
3. Martel, cited by Calmette, p. 317.
4. Ostertag: Untersuchungen über den Tuberkelbacillengehalt der Milch von Kühen, welche auf Tuberkulin reagirt haben, klinische Erscheinungen der Tuberculose aber noch nicht zeigen, Ztschr. f. Hyg. u. Infectionskr. **38**: 455, 1901.

human race has done in the past. The fact that thousands of cattle react to tuberculin just as thousands of men do, from the presence of a more or less well encapsulated focus of latent infection, is used as a potent argument against the establishment of slaughter as a routine following positive tuberculin reaction.

Man has come through a period in which his tuberculosis was much more severe than it is today, by a process of racial immunization in which survival of the fittest has played a big part. It is proposed to go beyond the operation of this principle of natural selection in the case of cattle. There would be no objection to this lack of immunity if the possibility of contact with sources of infection were likewise consistently reduced, but in these days of shipment and reshipment it is a question whether this is even approximately possible.

The failures of vaccination of cattle as attempted in 1905-1910 should not destroy all our hope. New methods are being proposed from time to time. The results sound encouraging, and the scientific standing of several of the proponents warrants serious attention. One fact that is unquestionable is that infection of any susceptible animal heightens its resistance to reinfection. A method of vaccination against tuberculosis may yet be evolved which will be at the same time effective and harmless.

ACACIA AND FUNDAMENTAL ASPECTS OF INTRAVENOUS INJECTIONS

The harmfulness of acacia in the treatment of shock and hemorrhage has been pointed out repeatedly. The changes resulting from the use of this otherwise inert agent bear on the many sided question of intravenous therapy. Investigations of this subject by Hanzlik and his associates in this country during the last six years, supported by the Therapeutic Research Committee of the Council on Pharmacy and Chemistry, indicate that a variety of agents, including acacia, produce physical and chemical changes in the blood and tissues of different species. Among such changes are hemagglutination and hemolysis, pulmonary thrombosis and hemorrhage, darkening and rapid sedimentation of the blood, lowering of the p_H, increases in lactic acid, diminution in carbon dioxide, and changes in hemoglobin, pulse, blood pressure and respiration. Obviously, such changes suggest important fundamental physical and chemical changes as the basis of the reactions resulting from intravenous injections. Moreover, they appear to be of general biologic significance, particularly in pharmacology and pathology, both of which employ foreign substances for interference with, or disturbance of, normal functions. The logic of this is well sustained by the recent work of Applemans,[1] of the University of Louvain laboratory of therapeutics, on the intravenous effects of acacia.

Applemans compared the effects of 6 per cent acacia on the viscosity of oxalated blood and sedimentation of corpuscles in vitro with the changes in these physical factors of the blood after intravenous injection in rabbits. He found, in confirmation of Hanzlik and his associates, that the blood after injection of acacia is definitely altered. Its viscosity was much higher than mixtures of equivalent quantities of blood and acacia solution in vitro. In fact, the blood was so thick at times that its viscosity could not be accurately determined. This increase in viscosity coincided with an increase in the concentration of acacia in the blood, for the injected acacia remained in the circulation during long periods (more than three days). The blood volume adjusted itself to the normal more quickly than the removal of acacia was accomplished, thus causing the relative increase in acacia in the blood. The rapidity of corpuscular sedimentation was greatly increased after injection of the acacia, while the sedimentation rate in vitro was much less. Apparently the blood was less stable after the acacia, and this was not due to hydremic plethora. Control solutions of sodium chloride and sodium bromide produced no such effects.

From his results, Applemans makes some interesting and important suggestions. There is, is course, some injury to the corpuscles and changes in blood colloids. There seems to be a physiology of viscosity, for this constant may be affected by the same agent differently after injection. Ordinarily, low viscosity and increased rate of sedimentation go hand in hand; but after acacia the reverse occurs, for the rate of sedimentation is increased and the viscosity high. The marked indifference of the reticulo-endothelial system and macrophages to the large quantity of acacia as foreign material in the circulation is an unusual situation, for ordinarily and almost invariably these mechanisms dispose of foreign material with great avidity. Do they refuse the inert acacia, or have they been overwhelmed, or perhaps injured, by it? This question among others cannot be answered now, but such results open up new vistas in experimental pathology and immunology.

Thus, from the practical side the harmfulness of the intravenous use of acacia solution is reiterated. In a recent address, Gesell [2] of the physiologic laboratory of the University of Michigan warns that the greatest care should be exercised in the use of this blood substitute in man, for in his physiologic experiments extremely toxic effects with a large drop in blood pressure were not uncommon. This warning may be extended to other blood substitutes and, in fact, to intravenous injections in general.

1. Applemans, M.: Les injections isovisqueuses dans le sang, Arch. internat. de méd. exp. **2**: 111, 1925.

2. Gesell, R.: Another Outlook on the Chemical Regulation of Respiration, Science **63**: 58, 1926.

Current Comment

INSULIN IN EXCESSIVE VOMITING AND IN ECLAMPSIA

In the long fight against death [1] incident to pregnancy, a definite gain seems to have been made against excessive vomiting of pregnancy and of eclampsia. As late as 1923, but little progress had been made in determining the etiology and scarcely more in fixing on the treatment of eclampsia. At that time, Williams [2] gave its incidence as something less than 1 per cent of women who enter lying-in hospitals, and its frequency in general as about once in every 500 labors. The maternal mortality, he determined to be between 20 and 25 per cent.[3] Ordinary vomiting of pregnancy [4] was estimated to occur in 50 per cent and pernicious vomiting in 0.1 per cent of pregnant women. In 1924 [5] and 1925,[6] Thalhimer extended his treatment of postoperative, nondiabetic acidosis to include cases of toxemic vomiting of pregnancy. Briefly, the method consisted in intravenous administration of about 1,000 cc. of warm 10 per cent glucose solution at the rate of from 200 to 300 cc. an hour. In addition, fifteen minutes after the injection is started 10 insulin units is given hypodermically. More insulin is given at intervals until 30 units to the thousand cubic centimeters of glucose solution has been given. Although Thalhimer gave due credit to Titus, Hoffman and Givens [7] and to Duncan and Harding,[8] who had administered glucose alone in cases of this sort, his method of combining insulin with glucose seemed to give better results than did glucose alone. Toward the end of one of his articles [6] on this subject, Thalhimer said: "Also, some patients with eclampsia, especially those with ketosis, may be benefited by this method of insulin treatment, but there has not yet been opportunity to treat any of these." In the discussion of another of his papers,[6] replying to a question by Dr. Harold Bailey as to the use of his method in eclampsia, Thalhimer reported partial benefit to one eclamptic patient from the treatment. More recently, in a preliminary report [9] that is too brief to include complete references to previous work, it is shown that eclampsia may be treated by a combination of insulin and glucose together with a modified Stroganoff treatment. In the event of coma or semiconsciousness following a convulsion, Stander and Duncan begin the modified Stroganoff treatment as soon as the patient is admitted, and immediately determine the sugar content and carbon dioxide combining power of the blood. If the blood sugar is unduly increased and the carbon dioxide combining power unduly decreased, from 15 to 25 units of insulin is given. About 2 Gm. of glucose is usually given to each unit of insulin. The authors recommend to the general practitioner that, in the presence of persisting coma or semiconsciousness following convulsion, insulin and glucose be given whether or not laboratory determinations are available. Deaths from pernicious vomiting and eclampsia may soon be deductible from the total of maternal mortality.

1. Reporting of Maternal Deaths, Current Comment, J. A. M. A. **86**: 421 (Feb. 6) 1926.
2. Williams, J. W.: Obstetrics, ed. 5, p. 597.
3. Williams, J. W.: Obstetrics, ed. 5, p. 620.
4. Williams, J. W.: Obstetrics, ed. 5, pp. 578, 579.
5. Thalhimer, William: Insulin Treatment of the Toxemic Vomiting of Pregnancy, J. A. M. A. **82**: 696 (March 1) 1924.
6. Thalhimer, William: Insulin and Glucose Treatment of Excessive Vomiting of Pregnancy, Am. J. Obst. & Gynec. **9**: 673 (May) 1925 (reprint).
7. Titus, Paul; Hoffman, G. L., and Givens, M. H.: The Rôle of Carbohydrates in the Treatment of Toxemias of Early Pregnancy, J. A. M. A. **74**: 777 (March 20) 1920.
8. Duncan, J. W., and Harding, M. E.: Canad. M. A. J. **8**: 1057 (Dec. 18) 1918.
9. Stander, H. J., and Duncan, E. E.: The Use of Insulin in Eclampsia, Am. J. Obst. & Gynec. **10**: 823 (Dec.) 1925.

VARIATION IN DIPHTHERIA BACILLI

The variable morphology of diphtheria bacilli, combined with the generally current misinformation on the subject, has caused embarrassment to many a young, well informed laboratory technician. The impression is made that the Klebs-Loeffler bacillus is a club-shaped organism—whatever may be meant by club-shaped—that it has a dark spot at each end, one larger than the other, and that the two dark spots are connected by a membrane or network. That sounds so simple to the clinician who seldom, if ever, looks through a microscope that he cannot reconcile his preconceived ideas with the actual morphology in a given case. He has "seen diphtheria, and it did not look like that!" The technician can only insist that he knows what he is talking about. Recent investigations tend to show that there is no typical organism. From a study of single organisms taken from various cultures, Crowell [1] concludes that "a fluctuating variation has been shown by the development of barred Wesbrook types from the solid forms, but a real mutation has been shown by the development of a nontoxic strain." Thus, typical toxic diphtheria bacilli apparently yield both toxic and nontoxic forms, according to hereditary and environmental factors not yet established. Morphology as revealed by present methods seems to have no relation to the virulence of the descendants of such organisms, but the encouraging news is offered that the nontoxic strains which may develop are permanently nontoxic.

HOSPITAL FACILITIES AND SURGICAL TUBERCULOSIS

Recently, surgery has entered greatly into the treatment of pulmonary tuberculosis. Certain types of the disease, formerly hopeless, have yielded to artificially induced pneumothorax applied by the unilateral, the alternate bilateral or the partial simultaneous bilateral methods. Extrapleural thoracoplasty, injection of oil and phrenicectomy have likewise prolonged and possibly saved many lives. Together with this advance in treatment has come the problem of making surgery available to those who require it without endangering others. One body of authority asserts that "there is some risk in living in the same room even with a careful consumptive." [2] and that treatment of tuberculosis in general hospitals should be avoided so far as possible unless special wards are provided for the

1. Crowell, M. J.: Morphological and Physiological Variations in the Descendants of a Single Diphtheria Bacillus, J. Bacteriol. **11**: 65 (Jan.) 1926.
2. Vaughan, V. C.: Epidemiology and Public Health **1**: 469, 1922.

patients.[3] This opinion is supported by a few of the specialists to whom Dr. Adolphus Knopf [4] recently sent a questionnaire. On the other hand, the great majority of those who replied to this questionnaire, together with Dr. Knopf himself, reinforce the belief of Dr. Willy Meyer [5] that although children may become infected from tuberculous patients, there is practically no danger to adults of contracting the disease in hospitals. Dr. Meyer asserts that scarcely ever has a healthy physician, nurse or employee of a tuberculosis hospital or sanatorium contracted the disease. Here, then, is the necessity of balancing benefits, of compromising with the ideal and attaining the practicable. Tuberculous patients requiring surgery cannot wait. Many sanatoriums, furthermore, are not equipped, either in personnel or in operating or nursing facilities, to give their patients the requisite surgical treatment. Until sanatorium space is adequate and until sanatoriums possess sufficient surgeons and surgical facilities, surgical wards in general hospitals must be made available to those tuberculous patients to whom operation means a chance to live.

3. Vaughan, V. C.: Epidemiology and Public Health **1**: 494, 1922.
4. Knopf, S. A.: The Placing in General Surgical Wards of Patients on Whom Thoracoplasty Has Been Performed, Arch. Surg. **12**: 320 (Jan.) 1926.
5. Meyer, Willy: Patients with Pulmonary Tuberculosis in General Hospitals, Arch. Surg. **12**: 311 (Jan.) 1926.

Association News

THE DALLAS SESSION

Railroad Rates to Dallas

The passenger associations throughout the United States have authorized a rate of one and one-half fares for the benefit of members of the American Medical Association who will attend the Seventy-Seventh Annual Session, to be held in Dallas, April 19-23. The Canadian Passenger Association has also authorized these reduced rates from points in Canada east of and including Armstrong, Fort William and Sault Ste. Marie. *In order to secure the reduced rates, it will be necessary for each member to secure a certificate from the ticket agent when he purchases his ticket to Dallas.* The certificate must be certified by the Secretary of the American Medical Association. This may be done at the Registration Bureau at the State Fair Grounds in Dallas. The certificate must then be validated by a representative of the railroads who will be on duty near the Registration Bureau. When the certificate is so certified and validated, it will entitle its holder to purchase a return ticket to his home, over the same route traveled to Dallas, at one-half fare.

The certificate referred to is not a receipt for money paid for a ticket. *Be sure to ask your railroad ticket agent for a CERTIFICATE when you purchase your ticket to Dallas.*

The dates of sale of tickets to Dallas will be April 15 to 21, inclusive, in the territories of the Southwestern Passenger Association, the New England Passenger Association, the Trunk Line Association, the Central Passenger Association, the Southeastern Passenger Association and the Canadian Passenger Association. In the Transcontinental and Western Passenger Associations' territory the dates of sale of tickets from Minnesota, Michigan, Montana, North Dakota, South Dakota, Utah and Wisconsin will be April 14 to 20; from Arizona, British Columbia, California, Idaho, Nevada, Oregon and Washington, April 13 to 19, and from Colorado, Illinois, Iowa, Kansas, Missouri, Nebraska, New Mexico and Wyoming, April 15-21. Certificates *properly certified and validated* will be honored for purchasing tickets for the return journey at one-half fare up to and including April 27, *but these certificates will not be honored after that date.* No refund of fare will be made on account of failure to obtain proper certificate when ticket to Dallas is purchased, nor on account of failure to present validated certificate when purchasing return ticket. The return ticket must be used over the same route as that traveled going to Dallas. Return tickets issued at the reduced rate will not be good on any limited train on which such reduced fare transportation is not honored.

Cancer Exhibit Under the Auspices of the Section on Dermatology and Syphilology

The Committee on Exhibits of the Section on Dermatology and Syphilology announces that the arrangements for the cancer exhibit are practically complete; indications are that the exhibit will be as large a success as was the section exhibit last year dealing with syphilis.

The exhibit will consist of numerous photographs illustrating not only the varying clinical appearances of cancer, particularly as applied to the skin, but other conditions that simulate cancer and must be diagnosed differentially. The various features will be grouped on the basis of making the exhibit educational and instructive to the general medical public. There will be numerous histologic sections, generally amplified by personal demonstration and employing the projecting microscope. In another section of the exhibit, the results of cancer research will be shown. The exhibit promises to surpass any that have been given in the way of the objective demonstration of cancer. The committee in charge is composed of Drs. I. L. McGlasson, Fred Weidman and E. D. Crutchfield.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Dr. Alvarez Leaves California.—Dr. Walter C. Alvarez, associate professor of research medicine at the University of California Medical School, San Francisco, has accepted a position at the Mayo Clinic, Rochester, Minn.

Virulent Smallpox.—The state board of health has issued a warning, it is reported, that an extremely virulent type of smallpox is prevalent in California and that all persons who have not been successfully vaccinated recently should take that precaution. In the first thirty-five days of this year, there are said to have been 443 cases of smallpox and forty-three deaths reported.

Society News.—Dr. Frank W. Lynch, professor of obstetrics and gynecology, University of California Medical School, San Francisco, addressed the San Joaquin County Medical Society recently on "Indications and Technic for Cesarean Section."——Dr. Charles Ianne, assistant medical director, Arroyo Sanatorium, Livermore, addressed the Sonoma County Medical Society, recently, on "Heliotherapy."——The secretary of the Sacramento County Medical Society recently addressed a questionnaire to each member, concerning service in the medical officers' reserve corps, and forty-four members indicated a willingness to join the corps; there was an equal number who were unwilling to join. The society has become the sponsor by resolution for the four reserve units within its territory.

COLORADO

Hospital News.—Dr. Harry J. Corper, Denver, addressed the directors of the National Jewish Hospital for Consumptives at their annual meeting in New York, January 10.——Dr. M. H. Watt, Wellington, N. Z., deputy director general, New Zealand Health Department, recently spent two days visiting Denver hospitals; Dr. Watt left, January 10, for St. Louis, and will visit other hospitals and medical centers.——The new County Hospital at Fort Collins has been opened.——The Jewish Consumptive Relief Society of Denver has launched a campaign for $1,000,000.

DISTRICT OF COLUMBIA

Society News.—Dr. Jacques E. Forestier, Paris, France, addressed the Medical Society of the District of Columbia, January 20, on "Roentgen-Ray Examination with Iodized Oil Injection."——Dr. Daniel D. V. Stuart, Jr., addressed the Medical Society of the District of Columbia, January 13, on "A Rationalistic View of Psychoneurosis."——Mr. Emile Berliner, a former president of the Washington Tuberculosis Association, has presented to the National Tuberculosis Association a large silver trophy to be awarded next December by a committee to that state tuberculosis association which makes the best record in the number of children treated in schools with benefit to school work and advancement in measures of hygiene.

Health Association Formed.—Final steps were taken in the organization of the District of Columbia Public Health Association at a meeting, February 8. The purpose of the organization will be to take an active interest in affairs that relate to public health in the District of Columbia. Dr. Victor C. Vaughan was elected president; Drs. George M. Kober and William C. Fowler, vice presidents; James A. Tobey, secretary, and W. C. Cox, treasurer. Membership was divided into four groups: active, to embrace those professionally engaged in public health work; associate, to include those interested other than professionally; sustaining, for those who will contribute money, and honorary, for persons not exceeding two each year, rendering noteworthy service to the public. Of the local health matters that may receive the support of the new organization, the secretary enumerated two as examples: better medical inspection service in the public health service, and sewage disposal in Washington, with the attendant problem presented by pollution of the Potomac River.

GEORGIA

Miscellaneous Items.—Dr. Stewart R. Roberts, Atlanta, has been elected president of the staff of Wesley Memorial Hospital, Emory University.——Ground has been broken for the new $500,000 Georgia Baptist Hospital, Atlanta.——The Randolph County Medical Society held a clinic, February 4, at Patterson Hospital, Cuthbert; the program included cases under general medicine, orthopedics and pediatrics; they were discussed by members of the faculty of the University of Georgia Medical School.

Expansion of Medical School.—Of the $10,000,000 expansion fund now being raised by Emory University, Atlanta, $4,500,000 will be for the expansion of the medical school. The latter sum will be used, the *Journal of the Kansas Medical Society* says, to endow the school of medicine ($2,000,000), to endow the Wesley Memorial Hospital ($2,000,000), for a pathology laboratory and administration building ($225,000), for a nurses' home ($200,000), and to complete the chemistry building ($75,000).

ILLINOIS

McKinley Hospital Dedicated.—The new $200,000 hospital donated by Sen. William B. McKinley, Champaign, for the care of students at the University of Illinois, Urbana, was formally dedicated, February 13. It conforms to the style of architecture of other new campus buildings, and is located in the University of Illinois Forestry at the west end of Indiana Avenue, Urbana.

Personal.—Dr. John W. H. Pollard, former health officer of Quincy, has been appointed health superintendent of the eleventh district of Illinois, comprising Adams, Hancock, McDonough, Schuyler, Brown, Pike and Calhoun counties, to which he will devote full time; his headquarters will be in Quincy.——Dr. Harold Swanberg, Quincy, has been elected president of the Central Illinois Radiological Society.——Dr. Daniel M. Ottis has been appointed on the board of the Sangamon County Tuberculosis Sanatorium to succeed the late Dr. L. C. Taylor.——Dr. Perl K. Andrews, Danville, has been appointed county physician to succeed Dr. Everett E. Howard, resigned. Dr. Howard is moving to Crawfordsville, Ind.

Chicago

Tuberculosis Institute.—Under the auspices of the National Tuberculosis Association and the Chicago Tuberculosis Institute a regional institute will be conducted at the University of Chicago, March 8-20, for health workers in all nearby states; another such institute will be conducted at Ohio State University, Columbus, March 15-22. Philip P. Jacobs, Ph.D., of the National Tuberculosis Association, is in charge of the program; authoritative speakers will present various phases of the tuberculosis problem. The round table method will be used. The institute will be open to health commissioners, tuberculosis workers and nurses.

Society News.—Dr. Kellogg Speed addressed a joint meeting of the Chicago Medical Society and the North Shore Branch, February 3, on "Fractures of the Head of the Radius," and Dr. George E. Baxter, on "Important Factors in the Management of Sick Infants."——Dr. Herman L. Horwitz addressed the Chicago Tuberculosis Society, February 11, at the Brevoort Hotel, on "Cardiac Index—A Means of Prognosis in Pulmonary Tuberculosis."——Among the speakers at the February 1 meeting of the Chicago Laryngological and Otological Society were Dr. Harry L. Pollock, whose subject was "An Unusual Mastoid Region Tumor."——Dr. John A. Wolfer addressed the Chicago Surgical Society, February 5, on "Carcinoid Tumors of the Intestine."——Dr. Sydney Walker, Jr., addressed the Chicago Society of Industrial Medicine and Surgery, February 1, on "The Treatment of Superficial and Deep Eye Infections."——Dr. Jerome M. Lynch, New York, addressed the Chicago Medical Society, February 17, on "Cancer of the Rectum"; and Dr. Joseph Felsen, New York, gave a demonstration of pathologic specimens of cancer of the rectum.——Among others, Drs. Milton M. and Bernard Portis will address the Institute of Medicine, Chicago, February 26, at the City Club, on "Experimental High Intestinal Obstruction: Relief by Irrigation and Control of Alkalosis"; Dr. Edward A. Oliver, on "Dermatitis Venenata: Report of a Case of Unusual Etiology," and Dr. Dallas B. Phemister, on "Radium Necrosis of Bone."

KANSAS

Calendar Reform.—Dr. George W. Davis, Ottawa, has submitted a suggestion to the League of Nations for a new universal calendar, which will be acted on, it is expected, at the March meeting of the calendar reform committee.

Council Meeting.—At the midwinter meeting of the council of the Kansas Medical Society, Kansas City, January 19, it was decided to hold the sixtieth annual meeting of the society in that city, May 4-6. The secretary was instructed to prepare the program from their own members and to secure from three to six physicians of national reputation to present papers, and also a speaker from the headquarters of the American Medical Association. Dr. W. E. McVey was unanimously elected editor of the *Journal of the Kansas Medical Society*.

KENTUCKY

Bill to Sell Hospital.—A bill has been introduced into the state senate, which would authorize the sale of the Eastern Kentucky State Hospital, and the reinvestment of the proceeds of the sale in a new hospital plant near Lexington. The present buildings of the Eastern Kentucky State Hospital are said to be inadequate for the proper care and treatment of the patients.

Hospital Project Abandoned.—The Federal Board of Hospitalization has abandoned the plan of building a Veterans' Bureau Hospital at Pikesville, for which a tract of 34 acres had been purchased. General Hines, director of the Veterans' Bureau, is reported to have said that the project was abandoned on his recommendation, and that he would ask authority of Congress to sell the site.

Personal.—Dr. Robert M. Hathaway has been reelected director of the Daviess County Health Department.——Dr. Herbert H. Hunt has been appointed city health officer of Mayfield.——Dr. Thomas L. Taylor, who has been superintendent of the Feeble Minded Institute, Frankfort, for several years, has resigned, and will leave, March 1, for Hawaii to be superintendent of a territorial institution near Honolulu.

LOUISIANA

French Hospital Opens to Public.—It was announced at the eighty-third anniversary ball of the Société Française, New Orleans, February 4, that the French Hospital on Orleans Street will be remodeled and reopened to the public; for two years the hospital has been closed to all except members of the society, on account of lack of room and equipment. The hospital was founded nearly seventy years ago.

Personal.—Dr. Adolph Henriques, assistant professor of radiology, Tulane University of Louisiana School of Medicine, New Orleans, has gone to France to study the treatment of high blood pressure by radiologic methods, and to observe developments in Europe in the roentgen-ray treatment of cancer and senility.——Dr. Helen A. Moore of the American

Child Health Association arrived in New Orleans, January 23, to spend three months in Louisiana in training midwives. ——Dr. Wilmer R. Batt of the Bureau of the Census, Washington, D. C., spent several days early in February at the offices of the state board of health, New Orleans, inspecting the records of the Bureau of Vital Statistics.——Dr. Felix Brunot, who has been on the staff of the U. S. Marine Hospital at New Orleans, has been assigned to duty at the Marine Hospital, San Francisco.——On February 6, about a thousand friends of Dr. and Mrs. Charles F. Gelbke of Gretna marched to their residence to present a silver service at the celebration of their twenty-fifth wedding anniversary; Dr. Gelbke is the mayor of Gretna.

MARYLAND

Gifts to Johns Hopkins University.—Two $100,000 gifts have been received by the Johns Hopkins Half Century Committee, making a total of $1,358,283 collected, and the appeal will be continued in Maryland another week. It is hoped to raise, in Maryland, $1,500,000. Mr. and Mrs. Henry Walters are the donors of the first $100,000, and Mr. R. Brent Keyser, president of the board of trustees of the university, of the second $100,000.

Regional Health Meeting.—The first of a series of regional conferences to be held throughout the state dealing with local health problems was held, February 17, at Frederick. Deputy state health officials, representing Frederick, Howard, Carroll and Montgomery counties among others, were present. Dr. Elmer C. Kefauver, health officer of Frederick County, presided, and among the speakers were: Dr. Robert H. Riley, assistant director, state department of health; Dr. James H. Mason Knox, Jr., chief, bureau of child hygiene, state department of health; Dr. Arthur P. Herring, commissioner of mental hygiene, and Dr. Josiah S. Brown, deputy state health officer of Baltimore County. Medical examination of school children, tuberculosis clinics, mental hygiene clinics and immunization against diphtheria were discussed.

MASSACHUSETTS

The Dunham Lectures.—The faculty of medicine of Harvard University, Boston, announces that four lectures will be given under the Edward K. Dunham Lectureship for the Promotion of Medical Sciences, February 24 and 26, and March 1 and 3, at building C, Harvard Medical School, 5 o'clock. The speaker will be Dr. Ross G. Harrison, Bronson professor of comparative anatomy, Yale University, New Haven, Conn., and his subject, "Recent Advances in Experimental Embryology."

Massachusetts General Hospital Appeals for Funds.—The trustees of the Massachusetts General Hospital, Boston, announced, February 5, that an appeal will soon be made to the people of New England for $3,250,000, for the construction of additional hospital facilities and for the endowment of research and education in medicine and surgery. The Massachusetts General Hospital has had a large part in making medical history in the United States. Its records show that almost every state has been represented among its patients; those patients who came from New England have been from 574 different places in Massachusetts, from 222 places in New Hampshire, from seventy-seven places in Vermont, from 202 places in Maine, sixty places in Connecticut and from forty-eight places in Rhode Island. The development program includes: (1) additions to the Bullfinch Building; (2) a hospital for people of moderate means, to contain about 300 beds, and for which Mrs. Mary Richardson has given $1,000,000; (3) development of the outpatient building; (4) a new ward building; (5) extension of the research laboratories; (6) extension of the roentgen-ray and radium department, and (9) a larger boiler house. It is hoped by the trustees that all of New England will respond to the coming appeal, and small gifts, as well as large, will be welcomed.

MICHIGAN

Society News.—An explosion occurred in the Wayne County Medical Society Clubhouse, Detroit, Dec. 24, 1925, which blew out many windows in the building and caused damage estimated at $6,000.

Hospital News.—Overcrowded conditions at the new University of Michigan Hospital, Ann Arbor, necessitate the opening of the old hospital building, which formerly accommodated all patients; the old structure which has been under repair for the last four months, will add about 300 beds to the institution.

Personal.—Dr. Guy Rexford Bullen, for a number of years school physician for Jackson, has resigned to engage in general practice.——Dr. James H. Hudson, Merrill, was recently prosecuted for failure to report births, according to the *Journal of the Michigan State Medical Society*, and was fined $20 and costs. The state department of health is investigating all similar violations of the law that come to its notice, and will prosecute violations of this kind.——Dr. Cyril A. Youngs, who has been city physician of Kalamazoo for seven years, has resigned, effective March 1, to engage in private practice.——A testimonial dinner was given recently to Dr. Constantine Leventis, Detroit, on the eve of his departure for Arizona, where he will continue to work on the development of a serum for the treatment of tuberculosis.

MINNESOTA

Hospital News.—The U. S. Veterans' Bureau Neuropsychiatric Hospital, to be built on the Fort Snelling Reservation, will comprise twenty buildings costing $1,200,000; bids for the construction work were opened, January 26.

Society News.—Dr. Arthur F. Bratrud, Minneapolis, addressed the Hennepin County Medical Society, Minneapolis, February 1, on "Local Anesthesia in Surgery of the Lower Jaw and Neck"; Dr. Frederick A. Erb has been elected president of the society for 1926.

Personal.—Dr. Solon Marx White, Minneapolis, has been elected president of the state board of health, and Dr. Albert J. Chesley, St. Paul, secretary of the board, reelected.——Dr. Jacob W. Magelssen, Rushford, observed his sixtieth year in the practice of medicine last month. Dr. Magelssen, now 83, is still in practice; he graduated from Rush Medical College in 1866.

MISSOURI

Society Home Nears Completion.—The St. Louis Medical Society has expended $73,000 on its new building, and has $75,000 to complete the structure. The $45,000 donation by the Shapleigh family, and the agreement of the society to contribute an equal amount, make possible the completion of the structure in May.

Society News.—Dr. Arthur M. Alden addressed the St. Louis Medical Society, February 2, on "Gastro-Intestinal Disturbances in Infants as a Result of Streptococcus Infection in the Ears."——The East St. Louis Medical Society invited St. Louis physicians to attend a meeting at the chamber of commerce to be addressed by Dr. Jacob C. Krafft, president, Illinois State Medical Society, February 4.——Dr. Arthur E. Hertzler, Kansas City, addressed the St. Louis Medical Society, February 9, on "The Classification of Goiter."——Dr. Walter Lancaster, Boston, conducted an operative clinic at St. Mary's Hospital, St. Louis, January 23, and was entertained at dinner by the ophthalmic section of the St. Louis Medical Society in the evening.

Personal.—Dr. Don A. Barnhart, Huntsville, has been appointed county physician, to succeed Dr. General G. Bragg, who has been county physician for two years.——Dr. Eugene M. Lucke has been appointed health commissioner of Marion. Dr. Lucke for two years has been director of the Gentry County Health Department.——Dr. Edward L. Beal, Republic, was elected president of the Ozark Fruit Growers Association, January 6.——Dr. Roy R. Miller, Mound City, has been appointed deputy state health commissioner and county physician of Holt County for one year, beginning March 1.——Dr. David C. Enloe has been appointed county health commissioner of Cole County to succeed Dr. Harden T. Leach.——Dr. O. R. Reynolds, Advance, has been appointed deputy state health officer, and will move to Bloomfield.

NEW YORK

Women's Medical Society.—The Women's Medical Society of the State of New York has an Educational Committee which aims to assist women students obtain a medical education. The committee is making an appeal for funds for this work. The Women's Medical Society of the State of New York will hold its annual meeting at the Hotel McAlpin, New York, March 29, at which time the Medical Society of the State of New York will be in session; among others at the banquet, Dr. Wendell C. Phillips, President-Elect of the American Medical Association, Dr. Nathan B. Van Etten, president of the Medical Society of the State of New York, and Dr. Ethel D. Brown, president of the Women's Medical Society of the State of New York, will speak.

Diphtheria Eradication Campaign.—Representatives of various state departments and state wide health organizations held a conference in Albany, February 2, to consider plans by which to rid the state of New York of diphtheria within the next five years. It was pointed out that ninety-five out

of every 100,000 people in the state died of diphtheria during the period 1885-1894, and that in the next ten years following the introduction of antitoxin the death rate was cut in two. There was a similar reduction in the death rate in the period 1905-1914; the use of toxin-antitoxin was begun about 1915, and in the last ten years, the death rate has been 15.5 per hundred thousand. Representatives from various cities in the state summarized what had been done in their communities toward eliminating diphtheria by means of immunization.

New York City

Dr. Fleming Appointed Superintendent.—It was announced, January 30, that Dr. Mark L. Fleming became general superintendent of Bellevue Hospital, January 1. Dr. Fleming had been acting in that capacity since last October, when Dr. George O'Hanlon resigned to become superintendent of the Jersey City Hospital. Dr. Fleming has been connected with the Bellevue Hospital for twenty years.

Moving Pictures for Lepers.—The New York *Times* notes that the Motion Picture Producers and Distributors of America have collected about 200 reels of comedies, feature and educational films, including "Chu Chin Chow," "The Great Divide" and "Tess of the D'Urbervilles," which have been donated, and are now on their way to Palo Seco, a leper colony near Balboa, Canal Zone. The films will never leave the leper colony.

Society News.—The Riverside Practitioners' Society is having motion pictures made of each of its forty-five members in order to have a "living" history; the records are being made under the direction of Drs. Orrin S. Wightman and Theron W. Kilmer.——At a joint meeting of the Bronx Pediatric and the Bronx Dermatological societies, February 10, the scientific session comprised a discussion of "Recent Advances in the Common Dermatoses of Childhood."——At the first organization meeting of the New York Society for Clinical Research, February 5, Dr. Jacob Gutman was elected president, Dr. Alexander Kaye, secretary, and Dr. Charles Herrman, treasurer; the purpose of the organization is to investigate the adaptibility of the latest researches to clinical medicine.

Italian Hospital Fund.—The movement inaugurated by the Italian Medical Society of Brooklyn for an Italian hospital was advanced at a dinner, February 8, at the Hotel Bossert, when it was announced that the $100,000 primary fund for the hospital had been oversubscribed, and that the purchase of a site near Prospect Park, on St. John's Place, was being completed. It was announced, also, that the Italian Medical Society had pledged an additional $100,000 for equipping the hospital. About a million dollars additional will be required to complete the project. Among the speakers at the dinner were the health commissioner, Dr. Louis I. Harris and Dr. John Richard Kevin of the state board of charities; Dr. Barrera, president of the Italian Medical Society, was toastmaster.

Personal.—Dr. Alec N. Thompson, secretary, Kings County Medical Society, has been appointed editor of the *Long Island Medical Journal*, succeeding Dr. Frank Overton.——Dr. George L. Brodhead has been appointed director of the obstetric service at the new Knickerbocker Hospital.——Dr. Walter T. Dannreuther, professor of gynecology at the New York Post-Graduate Medical School, was the guest of honor at a dinner given by Dr. Edward Frankel, Jr., at the Columbia University Club, February 10.——Dr. Walter A. Sherwood, Brooklyn, has been elected president for 1926 of the Associated Physicians of Long Island.——Dr. James Herbert Lawson has been elected commander of the Caduceus Post of the American Legion.——Dr. John A. Ferguson, who was temporarily serving as superintendent of the Bushwick Hospital, has resigned.——Dr. Lucius A. Salisbury was elected a vice president of the Association of National Guard Officers of the state of New York, at the annual convention at Syracuse, February 5-6.

NORTH CAROLINA

Hospital News.—A well equipped fifteen-bed hospital has been opened on the third floor of the First National Bank building, Thomasville, which will care for general medical and surgical cases. The hospital will function on the open staff plan.——The Mission Hospital, Asheville, announces a proposal to take care of the indigent of the city at $3.50 per patient daily, $5 for major operation service, $3 for minor operation service, and roentgen-ray service at actual cost. The hospital heretofore has cared for the indigent in large part for $350 a month, and has incurred a loss.——In the campaign to establish a negro hospital at Greensboro, Mrs. L. R. Richardson gave $50,000, and an unknown person $10,000; citizens agreed to raise $25,000. A committee of leading physicians is also actively engaged in the campaign.——The new $150,000 Davis Hospital at Statesville, having a capacity of fifty beds, has been completed; Dr. Calvert R. Toy is the house physician, and Dr. James W. Davis, the surgeon.——Dr. Arthur T. Pritchard has been elected president of the board of directors of the French Broad Hospital, Asheville.——Dr. Watson S. Rankin, Charlotte, director of the Hospital Section of the Duke Foundation, addressed the Tri-County Medical Society (Pasquotank, Perquimans and Chowan) at Hertford, January 26, on "The Need for Public Hospitals."

OHIO

Society News.—Dr. Foster Kennedy, New York, addressed the Columbus Academy of Medicine, recently, on "The Symptomatology and Diagnosis of Extending Lesions of the Brain."——Dr. Haven Emerson, New York, addressed the Academy of Medicine of Cleveland, February 19, on "Periodic Health Examinations."——Dr. Lurty N. Harris, Wheeling, W. Va., addressed the Belmont County Medical Society at Bellaire on "Periodic Examination of the Apparently Healthy Individual." Dr. Harry E. Kleinschmidt, chief, bureau of public health education, state department of health, addressed the Coshocton County Medical Society, recently, on "Health Education."

Increase in Death Rate.—Assuming that the December record was normal, the death rate in Ohio for 1925, according to *Ohio Health News*, was 11.6 per thousand population, a slight increase over 1924, which was 11.2; in the first six months of 1925 there was a marked increase in the number of deaths from scarlet fever, influenza, heart disease, lobar pneumonia, automobile accidents, homicides and exophthalmic goiter; most of the increase over 1924, however, was in the last six months; there was a decrease in the first six months in the deaths from diphtheria, measles, whooping cough, tuberculosis and cancer. The total death records amount to more than 73,400, which total has been surpassed only by those of 1920 and 1923 since the great epidemic of 1918.

OREGON

Personal.—Dr. Charles J. Smith, Portland, has been appointed a member of the state industrial welfare commission for three years.——Dr. Everett Mingus has been elected president of the medical staff of Wesley Hospital.——Dr. John B. Dinsmore has been appointed health officer of Washington County to succeed Dr. Leon W. Hyde, resigned.

Pollution of Willamette River.—Portland and six cities up the river pour sewage into the waters of the Willamette, and the point of saturation for sewage discharge has almost been reached. At a meeting of the League of Oregon Cities in January, a representative of the U. S. Public Health Service stated that decisive action in planning to handle the great flow of sewage into these streams must be taken to protect life. The state health officer is reported to have said that the waters of the Willamette are unfit for bathing, and that almost two thirds of the population of Oregon is sending sewage into that stream. The city engineers of the Willamette Valley conferred with the representative of the Public Health Service regarding stream pollution; about twenty-five cities were officially represented at this meeting.

PENNSYLVANIA

Prize for Case Report.—The Allegheny County Medical Society is offering a prize of $25 for the best case report submitted by an intern of any hospital in Allegheny County which has been approved for internship by the American Medical Association. The report shall be of a case that has been under the care of the intern reporting, and shall not exceed 800 words. Nothing on the manuscript should indicate the identity of the writer and manuscripts should be mailed to the Secretary, Allegheny County Medical Society, Jenkins Arcade, Pittsburgh, marked for "Case Report Contest," prior to May 1. The judges will be appointed by the president of the Allegheny County Medical Society.

Philadelphia

Society News.—The Philadelphia County Medical Society held a symposium on pneumonia, February 10, in which, among other speakers, were Drs. Russell L. Cecil and William Benham Snow, both of New York, and Drs. S. Solis Cohen and William E. Robertson; there was a lantern slide demonstration.——The Philadelphia Academy of Surgery and the New York Surgical Society held a joint meeting, February

10, at the Jefferson Hospital; the program included, among others, Dr. Charles H. Frazier: "Review of Results of Nerve Anastomosis in Treatment of Recurrent Laryngeal Paralysis"; Dr. John B. Deaver: "Fecal Fistula," and Dr. John Chalmers Da Costa.——At the February meeting of the Pathological Society, Philadelphia, Malcolm J. Harkins, and Drs. Jay F. Schamberg and John A. Kolmer spoke on "An Investigation of Gye's Work on the Etiology of Malignant Tumors."——The clinical conference form of program was inaugurated by the South Branch of the Philadelphia County Medical Society in the Methodist-Episcopal Hospital, January 22; Dr. James M. Anders discussed "The Etiology, Symptoms and Diagnosis of Pyelitis"; Drs. Elmer Paul Reiff, Leon Herman and William R. Nicholson presented illustrative case reports; Dr. Russell A. Richardson gave the laboratory findings of pyelitis, and Dr. Milton F. Percival, the roentgen-ray studies; then there was a general discussion on treatment. These meetings will be held on alternate months at this hospital and the St. Agnes Hospital, and members of staffs of other hospitals are invited.

WEST VIRGINIA

Fourteen Physicians Resign.—Fourteen members of the staff of the Children's Hospital, Huntington, tendered their resignations to the chairman of the board of directors, January 6, it is reported. The letter of resignation was signed by Drs. William Byrd Hunter, John C. Matthews, Ray M. Bobbitt, Rudolph H. Ruedemann, Alexander R. MacKenzie, Festus O. Marple, Frank C. Hodges, Charles G. Willis, Oscar B. Biern, Thomas W. Moore, Charles M. Hawes, Walter C. Vest, George M. Lyon and Walter N. Rowley.

State Society Statement.—In view of sporadic cases of smallpox and other small outbreaks in the north central part of the state, the West Virginia State Medical Association has issued a statement, it is reported, to inform the public that the mild type of smallpox now prevalent may at any time change to a malignant form; it is pointed out that the only way known to prevent further outbreaks with possible loss of life is for the people, generally, to become vaccinated. Some schools in the state are said to have been closed, recently, on account of the presence of smallpox.

Personal.—Dr. Roy Ray, Clendenin, tendered his resignation as head of the full-time county health unit that will begin operations in Kanawha, April 1, it is reported.——Dr. Thomas W. Moore, Huntington, has been elected president of the new Tri-State Medical Association (West Virginia, Ohio and Kentucky); Dr. Oscar B. Biern, vice president, and Dr. Festus O. Marple, secretary-treasurer.——Dr. Lewis V. Guthrie, Huntington, was recently reappointed for the sixth consecutive four-year term, as superintendent of the Huntington State Hospital. At the same time, the governor announced the reappointment of Dr. Albert G. Rutherford as superintendent of State Hospital no. 1, Welch.

WISCONSIN

Society News.—The Milwaukee (Passavant) Hospital interns have organized recently, and will meet the second Monday of each month in the evening, for scientific discussions, to which former interns and members of the staff are cordially invited.——Dr. Harry Gideon Wells, professor of pathology, University of Chicago, will address the Medical Society of Milwaukee County, April 9, on "The Influence of Heredity on the Occurrence of Cancer"; the February 12 meeting was devoted to reviews of the recent advances in the basic sciences bearing on clinical medicine, which were discussed by the full-time professors of Marquette University Medical School.——Members of the Milwaukee Academy of Medicine have subscribed $47,000 toward a bond issue for a new home for the academy; Dr. Ernst Copeland of Milwaukee has offered his interests in the Chandler Building to the academy of medicine with the understanding that, should the academy ever dissolve, the interests would be presented to the Wisconsin State Medical Society; after March 1 the library and reading rooms, as well as the meetings of the academy of medicine, will be in their "permanent new home in the Oneida Building," 153 Oneida Street. Recently Dr. Mynie G. Peterman addressed the academy on "Convulsions of Infancy and Childhood," and Dr. Francis D. Murphy on "Nephrosis."——Dr. Charles J. Coffey has been elected president of the Milwaukee Oto-Ophthalmic Society.——Dr. Louis M. Warfield, Milwaukee, recently addressed the Sheboygan County Medical Society on "The Heart as of Interest to the General Practitioner."——Dr. Paul A. Fox, Beloit, has been elected president of the Physicians and Surgeons Club of that city.——Dr. Jacques E. Forestier, Paris, France, addressed the University of Wisconsin Medical Society, recently, on "Practical Results of Roentgen-Ray Examinations with Injection of Iodized Oil."——The Racine County Medical Society will receive $50 annually in perpetuity as a bequest of the late Dr. Walter S. Haven, Racine.

GENERAL

Warning.—Mr. R. S. Dayton is not authorized to solicit subscriptions or collect for the American Medical Association. Our accredited agents carry credentials bearing an expiration date and the signature of Dr. Olin West, secretary and general manager of the Association.

Anti Bill.—The antivivisectionists have again brought forward the bill "to prohibit experiments on live dogs in the District of Columbia." This measure was introduced by Senator Fletcher of Florida, February 1. Experiments and operations on living dogs in the District of Columbia would be a misdemeanor by the terms of the bill.

Foreign Dental Delegates.—A joint resolution has been introduced by Senator Shipstead of Minnesota authorizing the president to invite foreign governments to appoint delegates to participate in the Seventh International Dental Congress, to be held at Philadelphia, August 23 to 28, under the auspices of the International Dental Federation.

Millions to Fight Tuberculosis.—Dr. Linsly R. Williams, New York, director of the National Tuberculosis Association, announced, February 12, that the recent sale of Christmas seals totaled $4,750,000. The antituberculosis campaign this year will emphasize closer cooperation between voluntary tuberculosis agencies and official agencies. The annual business meeting of the state secretaries, at which this announcement was made, was held in Chicago.

Physical Examination Manual in French.—Dr. René Sand, secretary general of the League of Red Cross Societies, Paris, France, has translated into French the manual published by the American Medical Association for the conduct of periodic examinations of apparently healthy persons. Any French speaking physicians or others who desire a copy of the manual in French can procure it by writing either to Dr. Sand at 2 Avenue Velasquez (Parc Monceau), Paris (VIII), France, or to the headquarters of the American Medical Association.

Death of Mr. Bausch.—John Jacob Bausch, founder and president of the Bausch and Lomb Optical Company, died at his home in Rochester, N. Y., February 14, aged 95. Mr. Bausch came to this country when 19 years of age and first sold lenses for eye-glasses in 1853, when his store was a portion of a shoemaker's shop. The first building on the site of the present factory in Rochester was completed in 1874. The business then branched out into many lines of the optical field. Mr. Bausch held various positions of trust in his community. He was formerly president of the Rochester General Hospital, and at the time of his death was honorary vice president of that institution.

Report on Type Culture Collection.—The annual report of the committee in charge of the American Type Culture Collection shows that the available cultures have increased from 175 to 722 during the period Feb. 1 to Dec. 15, 1925, including sixty-nine molds and 122 yeasts. In all, 360 orders have been filled, involving the sending of 1,540 cultures to 240 persons and institutions. The committee has established a price of one dollar per culture, with addition for packing and postage. A temporary list of cultures is available. A printed catalogue is planned for the near future. Communications should be sent to the American Type Culture Collection, John McCormick Institute for Infectious Diseases, 637 South Wood Street, Chicago.

Congress Reduces Narcotic Tax.—The Federal Tax Reduction Bill, which passed the senate, February 12, carried the provision heretofore passed by the House of Representatives reducing from $3 to $1 the annual registration fee charged to physicians under the Harrison Narcotic Law. There was no debate on this particular amendment in any of the protracted discussions of taxation in the senate proceedings. The arguments and reasons for the reduction of this tax were originally presented to the House Ways and Means Committee by Dr. Charles W. Richardson, Washington, D. C., and Dr. William C. Woodward, Chicago, both representing the American Medical Association. The adoption of this amendment marks the end of a long struggle on the part of physicians to have this tax restored to the prewar rate. Congress has now recognized the claim of the medical profession with reference to this tax and has repealed the war tax rate as a part of the administration program for the reduction of federal taxes.

New County Society Presidents.—The following physicians have recently been elected president of the county medical society indicated:

Dr. Henry Albert, Reno, Nev., Washoe County Medical Society.
Dr. Haney A. Angus, Lawton, Okla., Comanche County Medical Society.
Dr. Henry J. Ault, Dalton, Ga., Whitfield County Medical Society.
Dr. Ernest B. Baker, Gatesville, Texas, Coryell Medical Society.
Dr. Clyde J. Barker, Kaw, Okla., Kay County Medical Society.
Dr. Channing E. Dakin, Mason City, Iowa, Cerro Gordo County Medical Society.
Dr. Ralph L. Daniels, New Bern, N. C., Craven County Medical Society.
Dr. Wallace W. Dill, Norristown, Pa., Montgomery County Medical Society.
Dr. Frederick E. Franchere, Sioux City, Iowa, Woodbury County Medical Society.
Dr. Edward M. Gans, Judith Gap, Mont., Fergus County Medical Society.
Dr. Charles S. Hale, Cisco, Texas, Eastland Medical Society.
Dr. Herbert Henkel, Springfield, Ill., Sangamon County Medical Society.
Dr. John L. Holland, Madill, Okla., Marshall County Medical Society.
Dr. Harry C. Johnson, Antlers, Okla., Pushmataha County Medical Society.
Dr. George M. Landrock, Mill Valley, Calif., Marin County Medical Society.
Dr. Ream S. Leachman, Vallejo, Calif., Solano County Medical Society.
Dr. Frederick K. Lenfestey, Mount Clemens, Mich., Macomb County Medical Society.
Dr. Bessie S. Martell, Santa Ana, Calif., Orange County Medical Society.
Dr. James T. Matthews, Wathena, Kan., Doniphan County Medical Society.
Dr. Jesse L. McCracken, Smithfield, Pa., Fayette County Medical Society.
Dr. Keith S. McKee, Bakersfield, Calif., Kern County Medical Society.
Dr. Nathaniel J. Pickett, Milford, Texas, Ellis County Medical Society.
Dr. Fred G. Priestley, Frederick, Okla., Tillman County Medical Society.
Dr. Orville H. Richer, Warsaw, Ind., Kosciusko County Medical Society.
Dr. Andrew C. Roche, Calumet, Mich., Houghton County Medical Society.
Dr. John A. Russell, Auburn, Calif., Placer County Medical Society.
Dr. Howell A. Scott, Muskogee, Okla., Muskogee County Medical Society.
Dr. Taylor W. Scott, Stafford, Kan., Stafford County Medical Society.
Dr. Louis Severin, Bluffton, Ind., Wells County Medical Society.
Dr. Thomas M. Shaffer, New Castle, Pa., Lawrence County Medical Society.
Dr. Harry W. Stout, Wenonah, N. J., Gloucester County Medical Society.
Dr. Joseph A. Striebich, Moundsville, W. Va., Marshall County Medical Society.
Dr. Seymour D. Van Meter, Denver, Denver City and County Medical Society.
Dr. James R. Vermillion, Princeton, W. Va., Mercer County Medical Society.
Dr. Oscar M. Weaver, Lewistown, Pa., Mifflin County Medical Society.
Dr. John T. Wharton, Sulphur, Okla., Murray County Medical Society.
Dr. Howard M. Wheeler, Helena, Okla., Alfalfa County Medical Society.
Dr. Daphney E. White, El Dorado, Ark., Union County Medical Society.
Dr. Edgar J. Widby, Wenatchee, Wash., Chelan County Medical Society.
Dr. Archie E. Wilkins, Covington, Okla., Garfield County Medical Society.
Dr. Albert Woldert, Tyler, Texas, Smith County Medical Society.
Dr. Walter C. Woodward, Seattle, Wash., King County Medical Society.

News of Epidemics.—The whole northeastern part of the state of Ohio has a high incidence of measles, the greatest center of infection being Cleveland, where there were said to be, January 24, 1,952 cases. The state department of health announced that there were 10,000 cases in the state, and that in December the number was only 4,640.——The Union City High School, Union City, Pa., was closed, January 5, on account of an outbreak of diphtheria.——About 150 houses in Norristown, Pa., were under quarantine, January 21, on account of measles.——Many homes of Clarksville, Tenn., are said to have been quarantined recently on account of scarlet fever, the public schools have been closed and public meetings prohibited.——Dr. John J. Lentz, health officer of Davidson County, Tenn., reported, January 22, that 510 cases of measles had recently been reported, and that among them there had been six deaths.——The Spring Hill School near Sebastopol, Calif., was recently closed on account of an outbreak of scarlet fever, and the Eagle and Waugh schools near Penngrove, Calif., were recently reported closed on account of an outbreak of mild influenza.——An outbreak of influenza occurred at Powers, Ore., during the last week in January, and is said to have incapacitated about half the population.——The smallpox outbreak that has prevailed recently in Tampa, Miami and Jacksonville, Fla., has spread to West Palm Beach, where fourteen cases were reported during the first four days of February. Sanitary inspectors are making a house to house inspection to discover new cases. At that time most of the school children had been vaccinated.——The Mayfield (Ky.) *Messenger* stated, February 3, that there were hundreds of cases of mild influenza in the county and city of Mayfield.——The commissioner of health of Baltimore reported 129 cases of influenza with five deaths for the twenty-four hour period ending 10 a. m., February 5.——An epidemic of German measles has existed in Albany, N. Y., for more than two months; there have been more than a thousand cases, and about that number of school children were being kept out of school, January 29, by the epidemic.——Beginning February 15, all persons connected with the University of Illinois at Urbana, including students, professors, instructors and others who have not had smallpox or have not been vaccinated recently, were excluded from doing any work about the university, or attending classes for twenty days, on account of the menacing smallpox situation in the towns of Urbana and Champaign.——The schools at Lagro, Ind., were closed, February 2, to permit the vaccination of pupils who had been exposed to smallpox in the town where three families were under quarantine. The schools reopened the next day.

FOREIGN

Yellow Fever.—The December epidemiologic report of the League of Nations shows that the only cases of yellow fever reported last fall were a total of eight in the Gold Coast, Nigeria and Upper Senegal; there were five deaths among these patients. Yellow fever has not occurred in Peru, South America, it is said, since 1922.

Charcot Prize Endowed.—The Société de neurologie at Paris announces that the surplus left after the celebration of the Charcot centennial last June has been invested to endow a triennial prize of 4,000 francs. It is not open to competition. The society will select the beneficiary and give him a topic for research, clinical, anatomic or experimental, in the domain of neurology, on which he will report in three years at the latest.

Meeting of Committee of League of Nations.—The "Comité d'hygiène," which met at the Hague, January 4-7, discussed smallpox, alastrim and vaccine; it was decided to make a series of investigations as to whether alastrim is a distinct disease, and to investigate the question of preparing vaccine as far as possible in accordance with fixed regulations and its distribution accordingly. All health organizations will be requested to cooperate in order to compare results. The committee consisted of:

Prof. Ricardo Jorge (Portugal), chairman; Prof. T. Madsen (Denmark); Sir George Buchanan (Great Britain); Dr. H. Carrière (Switzerland); Dr. N. M. Josephus Jitta (Netherlands).

Experts: Drs. Gordon and Blazall (England); Professor Gins (Germany); Professor Sobernheim (Switzerland); Dr. Levaditi (Pasteur Institute, Paris); Dr. Terburgh, chief inspector of public health (Netherlands); Dr. Bijl, bacteriologist at the central laboratory for public health (Netherlands), and Dr. van Bouwdijk Bastiaanse, nerve specialist (Netherlands).

Deaths in Other Countries

Dr. **K. A. Herzfeld,** Vienna, chief of the Jubilee hospital and privatdozent.——Dr. **S. Patellani,** professor of social eugenics at Milan and writer on gynecology.——Dr. **A. Figlia,** professor of pediatrics at Sassari.——Dr. **C. Pellizzari,** emeritus professor of skin diseases, Florence, aged 74.——Dr. **A. Mackenrodt,** Berlin, who introduced several methods in operative gynecology, aged 67.——Dr. **Schütz,** Berlin, formerly professor of orthopedics, aged 71.——Major **R. Coppin,** retired, for many years physician to the shah of Persia.——Dr. **Chatin,** professor of infant hygiene, Lyons, aged 61.——Dr. **M. Bilhaut,** Paris, founder of the International hospital and of the Syndicat de la presse scientifique, aged 78.——Dr. **John Basil Hall,** immediate past president of the British Medical Association and consulting surgeon to the Bradford Royal Infirmary, January 12; Dr. Hall was the official delegate of the British Medical Association to the last annual session of the American Medical Association, Atlantic, City, N. J.——Dr. **Maygrier,** professor of obstetrics, Paris.——Dr. **Arvid Norgren,** Fränsta, Sweden, one of the three founders of the *Hygienisk Revy* in 1912.——Dr. **A. Passow,** professor of otorhinolaryngology, Berlin, succumbed to acute occlusion of mesenteric vessels, aged 66. He was on a professional trip to Doorn in Holland.——Dr. **Polyak,** privatdozent of rhinolaryngology, Budapest, aged 60.——Dr. **E. Rosenberg,** Munich, emeritus professor of anatomy at Utrecht, aged 83.——Dr. **A. Morelle,** professor of dermatology, Louvain, member of the national public health council.——Dr. **Camillo Golgi,** emeritus professor of pathology at Pavia, and senator, died recently at Rome, aged 82. He was the originator of the silver staining method for nerve tissue, and was the discoverer of the cells, corpuscles, etc., that bear his name. He shared with Ramón y Cajal the Nobel prize in medicine in 1906.——Dr. **J. B. de Landeta,** Havana, dean of the profession in Cuba, aged 87.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 22, 1926.

The Sterilization of the Mentally Defective

In a letter to the *Times*, a number of leaders of the profession, including Sir William Arbuthnot Lane, Sir James Dundas-Grant, Sir Thomas Horder, Sir James Purves-Stewart and Sir John Thomson-Walker, advocate sterilization of the mentally deficient. According to the last annual reports, there are in Great Britain more than 201,000 mentally affected persons. Of these, more than 51,000 are congenitally mentally defective, for many hundreds of whom no vacancies in existing institutions are available. In addition, there are many mentally deficient persons who are taken care of by relatives or friends, so that the figures given are by no means comprehensive. In the vast majority of cases, heredity is the cause of mental deficiency. The signatories feel that the time has more than arrived when something definite in the way of treatment should be undertaken to lessen the number of mentally deficient children, and that the means is in the power of the profession if supported by legislation. They consider it to be the duty of the medical profession to impress on the public the immense importance of hereditary tendencies in dealing with mental defectives. The "fundamentals of the mind" are begotten with the body, and predetermine character and conduct. The offspring of mental defectives are themselves mostly mentally deficient. Because the general public has never fully realized the enormous influence of heredity, the question of the thoroughly efficient treatment of the mentally deficient has not long been ventilated. The experience of institutions for the feebleminded is that, with rare exceptions, such persons remain as they are, no matter what is done for them. Since this is the case, and there is really no hope for general improvement, in the interests of those affected, as well as of the state, all these persons should be prevented from propagating their species. It is said by some that segregation alone would be all that is necessary, but it is impossible to segregate all mental defectives. But the signatories hold that the only means of preventing propagation is by sterilization—"a very simple operation which, while preventing reproduction, in no way interferes with the ordinary habits of life." In a considerable proportion of cases it would obviate the necessity for institutional treatment of either sex. A serious aspect of this question is the annual burden on the taxpayer for keeping up institutions for the mentally defective, which must necessarily continue and grow unless something more radical in the way of prevention is undertaken. The signatories consider that everything possible should be done to render the lives of these mental defectives as happy as possible under the circumstances, but that with our present birth rate, our excessive taxation, and the number of unemployed, sentiment and ignorance should not be allowed to interfere with a means of treatment by which the capacity to produce an imbecile progeny would be arrested.

A counterblast to this letter appears in the *Times* over the signatures of the chief officers of the Central Association for Mental Welfare (including the leading medical expert, Dr. Tredgold), the principal nonofficial body in the country dealing with defectives. During the last ten years, 34,000 cases of mental abnormality have been referred to its central office and local associations. Its central council is composed of representatives nominated by practically all the official bodies and societies in the country engaged in work among mental defectives with medical specialists of recognized standing in this subject. The question of sterilization was considered fully and carefully some time ago by the medical committee and council of the association, the most representative body of medical and lay men and women in this country, having a wide practical experience with mental defectives. They were fully cognizant of the cost of institutional treatment and the urgent necessity for economy; they were even more alive to the necessity of preventing the propagation of offspring by defectives. Nevertheless, they unanimously arrive at the conclusion that while sterilization might be appropriate for certain particular cases, it would have little effect in the prevention of mental deficiency, it would certainly lead to serious social evils, and it would be inimical to defectives and to the community were it to be adopted as a general policy. The grounds on which these conclusions are based are as follows: 1. The preventive effect of a general policy of sterilization would be very slight. Although the majority of cases of mental defect are the result of inheritance, the proportion of subjects who are the offspring of actually defective parents is extremely small. It follows that if every defective in existence a generation ago had been sterilized, the number of defectives today would not have been appreciably diminished; also, that if every defective now existing were to be sterilized, the result a generation hence would be insignificant. 2. A general policy of sterilization would be attended with serious social evils. There is no point in sterilization unless it is to be accompanied by the freedom of thousands of defective males and females, who are now cared for in institutions, where they are generally happy and usefully employed. Such freedom would inevitably mean a return to the disastrous conditions that existed before the passing of the mental deficiency act of 1913. Under these conditions, thousands of feebleminded persons led a harried existence between workhouse, refuge, prison and the street. Moreover, promiscuous sexual intercourse was very common, and the feebleminded were a great center for the spread of venereal disease. The association is convinced that the presence in the community of thousands of feebleminded girls and women known to be sterilized, and therefore incapable of becoming pregnant, would increase such promiscuous intercourse and venereal diseases.

This is rather a pretty quarrel between the most prominent leaders of the medical profession and those who can speak with unique authority on the subject of mental deficiency. The latter seem to have had the best of the controversy so far. But even if the value of sterilization were unquestioned, public opinion in this country would find such a measure too revolting to consent to its adoption.

The Irish Free State and the Medical Register

The disastrous effects to the Irish medical schools likely to be produced by the proposed separate medical register have been pointed out in previous letters. Evidently the difficulties are being felt by the Free State government, for legislation is about to be introduced into the dail to extend the existing arrangement for a further period of six months. This news has been received with much satisfaction by all classes in Ireland. The decision of the government to set up a separate register, inspired by nationalist sentiment, was one of its greatest blunders. Even among its stanchest supporters hardly anybody can be found to support its action, and it is generally hoped that, now that a further breathing space has been secured, the last has been heard of the proposal to isolate Irish physicians from the rest of the empire.

The British Medical Association and the Colonial Service

The British Medical Association has taken the extreme step of warning physicians not to apply for any appointment under the colonial medical services made in England. This decision is based on the view that regulations for the East

African medical service, which have recently been published, involve a breach of faith by the colonial office with officers at present serving in East Africa. The council of the association is accordingly of the opinion that members of the colonial medical services can no longer place any confidence in the fulfilment of the terms on which they were appointed. The committee holds that the new East African regulations impose on certain members of the medical service two conditions quite outside the original terms of their appointment. The first is a liability to transfer from one East African dependency to another. The second is a liability to the curtailment of their present opportunities for private practice. The regulations impose a liability to transfer on all members of the service, without any discrimination in favor of officers who were expressly and exclusively appointed to a particular dependency. Whatever the official intention may be, three months' correspondence with the colonial office has failed to secure any explicit guarantee that the right of these officers to refuse transfer will be respected. The power of governors, in consultation with their medical and sanitary advisers, to debar medical officers from private practice in districts where the needs of the community can be served by independent private physicians is, as far as East Africa is concerned, conferred for the first time by the new regulations. It can be, and has already been, used to cut off this source of income in particular districts where it is of substantial value. The existence of opportunities for private practice has been held out in unequivocal terms as one of the attractions of the service. The statement that private practice was allowed has hitherto been embodied not only in the official pamphlet for the information of candidates, but also in actual advertisements of vacancies. Further, official correspondence repeatedly refers to this source of income as one of the factors considered in determining the rate of service emoluments, and one of the advantages of a service in which these rates compare most unfavorably with those sanctioned for West Africa.

Death of John Gray McKendrick

The death of John Gray McKendrick, emeritus professor of physiology in the University of Glasgow, is announced. Born at Aberdeen in 1841, he received his education there, and graduated M.D. in 1864. His original intention was to engage in general practice, but while acting as surgeon in a hospital at Fort William he met Hughes Bennett, at that time professor of physiology in the University of Edinburgh, who offered him an assistantship, which he accepted. He soon gained a great reputation as a teacher. For some time also he acted as a lecturer on the institutes of medicine in the Extra-Academical School at Edinburgh. In 1876, on the death of Prof. Andrew Buchanan, he was elected to the chair of physiology in the University of Glasgow, which he held for thirty years. He quickly attained a great reputation both as a teacher and as a physiologic observer. In 1878 he published the "Outlines of Physiology," and in 1888 he produced the "Textbook of Physiology," both of which were very successful. In 1879 he published his lectures on the history of physiology, and in 1892 "Life and Motion," a contribution to the relations subsisting between nerve and muscle. He contributed many physiologic papers to periodical literature, especially to the transactions and proceedings of the Royal Societies of London and Edinburgh. Among the most valuable were papers on physiologic acoustics and experimental phonetics. Other works of considerable literary merit were a life of Helmholtz, which he produced in 1899, the Boyle lecture on hearing, delivered at Oxford in 1899, "Science and Faith," also produced in 1899, and "Christianity and the Sick," which appeared in 1901. In conjunction with the late Sir James Dewar, he showed that light produced electrical changes in the retina. He was also one of the first workers on the relation of chemical constitution to physiologic action. Following Carl Ludwig, he was one of the earliest in this country to use graphic methods in recording physiologic observations, especially in showing the relations between nerve and muscle, one of his most important researches.

A Martyr to the Roentgen Ray

The death of Mr. Reginald G. Blackall (already reported in THE JOURNAL, January 2, p, 48) removes the last of the three lay pioneers of roentgen-ray work at the London Hospital, Messrs. Harnack and Wilson, the two colleagues with whom he first worked, having died before him.

A New Vitamin

The report of the Medical Research Council, just published, contains much on research with regard to vitamins. A new vitamin has been added to the trio A, B and C. Vitamin D is known as the "antirachitic factor," and was, until its isolation, included in the properties of vitamin A, which may thus, in a sense, be regarded as its progenitor. The pure vitamin A appears to give a color reaction with certain chemicals; vitamin D does not, nor do the substances developed in various bodies after exposure to ultraviolet light. It may be inferred that vitamin D, and not vitamin A, is the "bottled sunshine" of which so much has recently been heard. However, it is unwise to be dogmatic where these "exquisite mysteries" are concerned. Meanwhile it can be said that the use of "light baths," given under proper conditions, appears to be fully justified as a tonic and therapeutic measure. The "sunlight work," in other words, stands. Indeed, the plan of exposing milk to ultraviolet rays, in order to increase its nourishing qualities, is proving highly successful.

BUENOS AIRES

(From Our Regular Correspondent)

Dec. 28, 1925.

Nurses

There has been of late a tendency to improve the status of nurses. Several training schools have already been established, such as those maintained by the Public Assistance Service, the Argentine Red Cross Society, the Institute of Cancer, the Parmenio Piñero Hospital and the British Hospital. There is already a large number of nurses, but not all are properly trained. Nurses from abroad would be taking chances in coming here, as the different language and customs and perhaps smaller salaries might be a source of disappointment. Before coming, they should have a definite understanding with the Public Assistance authorities or some hospital, sanatorium or physician. A competent person might make a way for herself, but there is plenty of competition in a city with a two million population.

Foreign Professors

The directing board of the Rosario Medical School has engaged Prof. G. Viale of Sassari, Italy, to fill the vacant chair of physiology. Much comment has been aroused by the fact that a number of competent local men were passed over in filling this position. However, a number of people still hold to the idea that anything European must be perforce better than the local product.

Professor Nicolle of Tunis made a study of leishmaniasis in the north of Argentina just before his return to France.

Meeting of the Argentine Medical Association

The Argentine Medical Association held in November its fourth congress on internal medicine. The subjects for discussion were: insulin and the hypoglycemic syndrome, Drs. P. Escudero and M. Hiriart; general diseases originating in the tonsils, Dr. F. Segura; cholecystography, Dr. F. Lanari; parathyroid medication, Dr. B. A. Houssay; and rickets and ultraviolet rays, Dr. Macera.

Conference on Microbiology and Medical Teaching

The fourth conference on hygiene, microbiology and pathology and the second congress on medical teaching will be held simultaneously in 1926. Prof. G. Aráoz Alfaro is at the head of the organizing committee, and a number of subcommittees have been appointed already both here and abroad. Dr. D. Cranwell, dean of the Buenos Aires Medical School, will preside at the meeting on medical education.

Internship

The public assistance has requested the Buenos Aires Medical School authorities to issue rules governing the appointment of medical students to the 281 vacancies now existing among *practicantes* (assistants) in local hospitals.

Medical School Board

The new directing board of the Buenos Aires Medical School includes Drs. M. R. Castez, M. Acuña, L. Tamini, D. Speroni, P. Corti, P. de Elizalde, representing the professors, and Drs. P. Usolenghi and O. Ivanissevich, on behalf of the students.

Biologic Society

The Argentine Biological Society has appointed these officers: Prof. J. Lambias, president (1926-1927); C. Pico, vice president, and N. Laclau, member.

Honors for Argentine Physicians

The Madrid Academy of Medicine has appointed as corresponding members Drs. E. Segura, B. A. Houssay, P. Belou and F. Arrillaga, all professors in the Buenos Aires Medical School.——The Medico-Physical Academy of Florence has appointed Prof. G. Aráoz Alfaro a corresponding member.——The gold medal of the Hamburg school has been granted to Drs. M. R. Castex and G. Aráoz Alfaro of Buenos Aires.

The Argentine Academy of Medicine has appointed as corresponding members Drs. P. Duval and L. Bernard of Paris, and P. del Rio Hortega of Madrid.

NETHERLANDS

(From Our Regular Correspondent)

Dec. 31, 1925.

The Central Laboratory of Utrecht

The central laboratory of Utrecht has published an annual report covering its activities for 1924. Material of scientific value includes the fact that Van der Hoeden has reached the conclusion that the flocculation test of Dalla Volta and Benedetti for the diagnosis of syphilis has by no means the same value as the Wassermann or the Sachs-Georgi test. For tuberculosis, however, Van der Hoeden favors the antigen test of Besredka rather than that of Wassermann. More than 50,000 bacteriologic examinations for tuberculosis and typhoid fever were made in the laboratory. In one instance, bacilli of leprosy were discovered in a specimen of buccal granulations. One interesting research was on certain metallic elements or minute particles of glass used by cake bakers to adorn their goods. These particles produced intestinal hemorrhages in animals. Their use should, therefore, be prohibited.

Choice of Specialist

Some maintain that a specialist should not treat patients without collaborating with the attending physician. Others believe that the patient has a perfect right to consult any physician he chooses. The family physician may possess information that would be valuable to a specialist seeing the patient for the first time; but the question arises whether we may speak of veritable family physicians, in view of modern living conditions. In any event, in civilian practice it seems difficult to regulate the question. In the *Krankenkasse* practice it is altogether different. The fact that a patient has been seen by his physician before consulting a specialist constitutes a method of control and also an additional guarantee of the character of the medical care.

Meeting of Pediatricians

The Nederlandsch Vereeniging voor Kindergeneeskunde and the Société de pédiatrie of Paris recently held joint meetings at Amsterdam and Leyden. The communications by Lesné, Rohmer, Woringer and Mlle. de Geus on the subject of spasmophilia were particularly noteworthy. Another subject comprehensively treated was the influence of heliotherapy on infants and the action of ultraviolet rays on hypertrophy and asthma (Schreiber, Mouriquand, Armand Delille and Nobécourt).

Instruction of the Masses in Hygiene

An experiment is being tried in the Netherlands for the instruction of the masses in the principles of public health. A committee composed of specialists and representatives of the hygienic societies has induced the managing editors of 165 journals to insert in their columns regularly, free of charge, short articles on public health, including information on prophylactic measures to be taken under given conditions. The federal council on public health has accepted the task of directing this new public health campaign and of distributing among the journals the opinions that it receives from specialists and various societies. These are some of the subjects treated thus far: quackery, prenuptial medical examinations, prenatal care, dental hygiene, accidents from lightning, traffic regulations. This method of public instruction makes it possible to reach a vast body of readers and the results have been excellent.

Collaboration Between Ophthalmologists and Opticians

After numerous discussions between ophthalmologists and opticians, a modus vivendi between them seems to have been reached. The opticians have agreed not to make refractions or to supply any person with spectacles unless he positively refuses to consult a physician. They will refrain from recommending such and such an ophthalmologist to any person who asks him for such a recommendation. However, they may hand to the inquirer a list of ophthalmologists belonging to the local society. They will likewise avoid entering into any commercial relations with ophthalmologists. The ophthalmologists agree also not to recommend any particular optician or to endeavor to influence the patient in the choice of a supply house.

New Dermatologic Clinic in Groningen

A new dermatologic clinic has been opened at the University of Groningen, Professor Van den Valk being the newly appointed head.

Value of Roentgenography in Gastric Ulcer

At a recent meeting of the society of gastro-enterology, papers were presented by Heilbron, Schalij and Schoemaker on the subject of the relative value of clinical and roentgenologic examinations in the diagnosis of gastric ulcer. It may be concluded that there are few trustworthy signs of gastric and duodenal ulcers. In general, clinical examination should take precedence over all other methods. In this connection, the words of Basil Hall are appropriate: "Radiography and all the other modern scientific methods are good servants but bad masters."

Rat Extermination

Considerable discussion has taken place at The Hague of late as to the best method of exterminating rats. The campaign of rat extermination was undertaken by certain communal services without the knowledge of the department of public health. The use of rat poisons led to the poisoning

of a child, and it was following this accident that the public press took up the question. The results of this campaign have shown that rat extermination undertaken in this fashion is entirely unsatisfactory. Good results can be secured only through the adoption of the American method; namely, construction and management of buildings in such a manner as to protect them absolutely from the invasions of rodents.

International Congress of First Aid to the Injured

In September, 1926, there will be held at Amsterdam the Third International Congress of Rescuing and First Aid to the Injured. The previous congress was held in Vienna in 1913. Since the Vienna congress, the importance of this branch of organized medicine has been more fully understood, especially with reference to accidents due to new modes of rapid transportation. In addition, there is the organization of first aid in the industries and in the life-saving stations along the seacoast. This program will be divided into several sections, each of which will deal with one or more phases of the subject.

GENEVA

(From Our Regular Correspondent)

Jan. 20, 1926.

The Spahlinger Treatment of Tuberculosis

The *Journal de Genève* has published a dispatch dated London, January 16, which reads: "A foundation has just been formed in England with the object to raise the sum of £100,000 sterling necessary for acquiring the rights to use Spahlinger's treatment for the cure of tuberculosis. Mr. Roscoe Brunner, director of the firm of Brunner, Mond and Company, manufacturing chemists, who made a speech at Manchester on this subject, stated that it would be necessary to first raise £40,000 sterling for the purpose of establishing a laboratory at Geneva."

This news item requires comment. Mr. Spahlinger is not a member of the medical profession, but studied law and afterward worked at the Pasteur Institute at Paris. Some years ago he took an estate in Carange, a suburb of Geneva, and there carried out his work for the cure of tuberculosis with a serum of his own composition. Mr. Spahlinger has had every opportunity to present his treatment to the Medical Society of Geneva, as well as to the Geneva Institute, and to treat patients in the clinics of Geneva. These opportunities he has scorned and has preferred on several occasions to seek financial aid in England.

Not long ago he persuaded the British government to look into his claims and a commission was, we think, sent to Geneva, but nothing came of it. A few years ago an eminent London physician on the staff of the Brompton Hospital for Diseases of the Chest reported that Mr. Spahlinger attempted to cure (that was his claim) with his serum some twenty patients placed at his disposal. In all, failure was complete.

The composition of this antituberculosis serum is unknown.

Venereal Disease

At the general meeting of the Swiss Antivenereal League, Dr. Cornaz reported on his investigations in the Lausanne antivenereal dispensary. During the last six years the Lausanne section of the league by lectures, tracts, the cinema, etc., has been active in teaching the public the dangers of venereal diseases and the importance of proper treatment. The moralist's point of view was respected in the lectures and a point was made of the benefits of continence. Regardless of all this propaganda the number of patients suffering with gonorrhea and syphilis has not decreased, and although syphilis tends to disappear, this is due to modern treatment and above all to neo-arsphenamine.

Gonorrhea at present is probably on the increase, but the patient consults the physician sooner. Dr. Cornaz divided gonorrhea patients into those who consulted a physician within the first eight days of their affection without having been treated elsewhere, and those patients with older cases either untreated or having been empirically treated.

The patients who present themselves early in their disease at the dispensary are on the increase, as the following figures show:

	Years					
	1919	1920	1921	1922	1923	1924
Recent gonorrhea	40%	38%	40%	61%	59%	54%
Gonorrhea of more than two weeks	60%	62%	60%	39%	41%	46%

In 1919, 23 per cent of the patients who came to the dispensary had first been to a pharmacist. This percentage declined to 20, 16, 9 and, in 1924, 7. This decrease is the effect either of propaganda or economy, as the dispensary gives all medicaments gratuitously. About 70 per cent of gonorrheal patients were faithful to treatment in all the years in question.

There is a considerable decrease of syphilis; the hard chancre and contagious lesions are becoming rare. The following figures show the syphilitic patients and the stage of the disease in which the patients sought consultation for the first time:

	Years					
	1919	1920	1921	1922	1923	1924
Primary syphilis	21%	25%	10%	20%	9%	2%
Secondary contagious syphilis	32%	25%	14%	25%	20%	10%
Old tertiary syphilis	12%	14%	47%	17%	45%	35%

The remainder of the cases had been already treated elsewhere.

Of ninety-nine patients with hard chancre, 83 per cent were regularly treated and remained under supervision; the others did not report after the cure of the chancre. Of patients with secondary syphilis, 31 per cent gave up all treatment before the entire course had been given.

Dr. Cornaz came to the following conclusions: 1. Propaganda should insist on the importance of early treatment, and, in syphilis, on the necessity of being treated and watched even when symptoms are not present. 2. Venereal service should be organized throughout rural districts. Gratuitous consultations should be multiplied and medicaments should be furnished to rural physicians for treatment of indigent syphilitic patients.

Dr. Golay of Geneva had been unable to compute complete statistics from the dermatologic polyclinic of Geneva, but offered the following figures: During the last six years, 2,067 cases of syphilis treated at the Contonal Hospital were divided as follows: 675 chancres (322 in the seronegative period, 353 in the seropositive period), and 1,392 secondary syphilis. This amounts to approximately one patient in the primary phase for two in the secondary period. In Professor Oltramare's clinic, of 661 patients with primary sores, 327 were negligent of treatment, approximately 50 per cent. These figures, less favorable than those given by Dr. Cornaz, could be explained by the fact that Dr. Golay's statistics comprised the entire period of the great war, when many patients were at Geneva only temporarily. Consequently, many of those classified as unfaithful to treatment probably continued treatment elsewhere. Dr. Golay showed that, in 1919, 105 chancres were treated, as against twenty-six in 1922. Since 1922, syphilitic contamination has still further decreased. Professor Oltramare pointed out that many patients with secondary syphilis came to the dermatologic polyclinic after having been treated by physicians for a varying length of time and, therefore, the ratio of primary to secondary syphilis in Dr. Golay's statistics did not fully correspond to the reality.

Quinine Monopoly

The monopoly of the quinine market held by the Netherlands government must be broken, according to the health experts of the League of Nations, either by direct action or by the use of a substitute antimalarial drug. To date quinine, as manufactured by Netherlands concerns operating in the Dutch East Indies, is the most effective product against malaria. This quinine is made from cinchona bark produced in Java. Last year approximately 10,600 tons of cinchona bark constituted the world's supply, of which more than nine tenths was grown in the Netherlands colonies. The remainder came from the British colonies, Peru and certain sections of Africa. The cinchona bark of Java produces from 6 to 7 per cent of quinine, while the product from other countries runs around 2 to 5 per cent. Even if the percentage of quinine was as high in the cinchona produced in Peruvian and African localities, the supply would fall far short of the demand. The production of quinine in the Netherlands possessions is controlled by a syndicate of growers and manufacturers, who fix the price on the Amsterdam market. The present price is about 22 florins (roughly $8.80) per kilogram, which investigators find brings a return of at least 36 per cent on the capital invested in plantations and factories. The supply is held at about 10 per cent of the world's demand in order to keep the price stationary. Efforts to persuade the government of the Netherlands to intervene and regulate the actions of the "quinine ring" have brought the information that the quinine interests are acting simply to "stabilize the market," and safeguard the "legitimate rights" of the industry. The health officials of the league are now collecting statistics on whether cinchonine can be made as effective in the treatment of malaria as is quinine. Cinchonine is a combination of all the alkaloids extracted from cinchona bark and can be secured from cinchona trees growing elsewhere than in the East Indies. If cinchonine proves suitable, the monopoly can be broken by cultivating the cinchona tree in all parts of the world where it will grow.

New Uses of Insulin

Insulin is extending its field of usefulness to certain morbid processes other than diabetes. At Strassbourg, insulin has been found useful in the healing of sluggish wounds in patients not diabetic. In varicose ulcers the use of insulin given intramuscularly and in ointment has been found beneficial, two injections of 40 units each being given daily without untoward effects. The local results obtained are interesting. Insulin treatment causes repair of the ulcer, and at the same time there is a distinct change for the better in the integument on the periphery of the ulcer.

BERLIN

(From Our Regular Correspondent)

Jan. 2, 1926.

Hospital Extension in Berlin

Professor Hoffmann, director of the central public health bureau of Berlin, has outlined the problems concerned with the hospital service. Municipal, private and state hospitals are all filled nearly to capacity. Greater Berlin has 21,700 beds in institutions for the sick, including orphan asylums and municipal shelters—more than five beds for each thousand inhabitants. This proportion was adequate in the prewar period, though some cities had six and seven beds per thousand inhabitants. Difficult housing and living conditions, notwithstanding the favorable status of the general health, account for the hospitals of Berlin being nearly always filled to capacity. Surgical and medical adult departments are especially crowded. The Zentral-Bettennachweis is kept informed by telephone of the beds available in the various hospitals, and thus far this central bureau has usually been able to meet demands for hospital accommodations. The difficulties will, however, increase as the population of Berlin continues (mainly as the result of immigration) to grow. Old Berlin had three large general hospitals. However, the suburbs that in recent years have been incorporated in Greater Berlin were not well supplied with hospital accommodations. Recent statistics show that there is an ever increasing number of aged persons seeking admission to hospitals. Jan. 1, 1921, there were 4,620 aged persons sheltered in Berlin and 194 in the province. Jan. 1, 1925, the numbers had increased to 4,804 for Berlin and to 1,303 for the province. Jan. 1, 1930, there will thus be approximately 8,000 invalided persons to provide for. Unfortunately, the accommodations for old people are especially inadequate.

Of equal importance is accommodation in the coming years for the increased number of psychopathic patients. Following the war, owing to bad housing conditions, few psychopaths continued to be cared for at home; furthermore, the reduction of alcoholism was only temporary, and, finally, a number of private institutions closed because of bad financial conditions. Jan. 1, 1921, the number of mentally ill patients in Berlin was 4,921, and in the provincial institutions, 1,718; Jan. 1, 1925, the numbers had increased to 5,616 and 3,662, respectively. Jan. 1, 1930, there will be presumably 11,800 psychopaths. As the beds for psychopaths provided in the province cannot be used by the city to the same extent as formerly, the psychopathic institution in Buch, which, in 1919, was transformed into a children's hospital, will have to be restored to its former use.

Another point taken up at the meeting was more accommodations for tuberculous men. When, a few years ago, the so-called *Heimstätten*, or homes, were discontinued, tuberculous men were sent mainly to private institutions. It was decided, as a first measure, to enlarge bed capacity of the Charlottenburg "Forest Home" (*Waldhaus*) from 300 to 600. In addition, an endeavor will be made to provide other buildings in favorable locations.

Vital Statistics for Germany for the Third Quarter 1924

In the third quarter of 1924, there were 101,004 marriages. As the number of marriages varies with the seasons, it is well to compare this figure with the corresponding one for 1923. This comparison reveals a decrease of 35,663, or 26.1 per cent, in the third quarter of 1924.

The number of living births recorded for the third quarter of 1924 was 304,633, as compared with 306,918 for the corresponding quarter of the previous year. The number of stillbirths was 9,631, as contrasted with 9,050 in 1923. These small differences in the records for the two years are not very significant.

The total number of deaths in the third quarter of 1924 was 166,992, as against 195,270 in the same quarter of 1923—a marked decrease in the general mortality.

The general mortality rate (inclusive of stillbirths) was 11.4 per thousand in 1924, as compared with 13.2 per thousand for the corresponding period in 1923, and 12.5 for 1922. The decrease is due partially to the reduction in infant mortality. The infant mortality rate, computed on the basis of the total number of living births, was 13.8 per cent for 1923, while in 1924 the rate had been reduced to 10.9 per cent, the lowest rate recorded in Germany.

The excess of births over deaths, the natural increase of population, was 137,641 for the third quarter of 1924, as compared with 111,648 for the corresponding period of 1923. When applied to the total population, these figures yield, respectively, 8.8 and 7.3 per thousand for the years 1924 and 1923, which is a very respectable showing, although the outcome falls far behind that of the years immediately preceding the war.

Marriages

JOHN EDWIN NORMENT, Baltimore, to Miss Blanche Elizabeth Richmond of Richmond, Va., January 30.

HOWARD B. DILLMAN, Louisville, Ill., to Miss La Fern Deabler of Xenia, at St. Louis, January 19.

HARRIS QUILLIAN JONES, Fort Myers, Fla., to Miss Dorothea Jo Nees of Atlanta, Ga., Dec. 22, 1925.

PREN J. ROSS, Grant City, Mo., to Miss Estelle L. McLean of Omaha, Dec. 14, 1925.

FRANK C. SCOTT to Miss Doris E. Laudan, both of Waco, Texas, Nov. 11, 1925.

Deaths

Grover William Wende ✠ professor of dermatology and syphilology in the University of Buffalo Department of Medicine died, February 9, following a fracture of the skull when he was hit by a street car while walking to a medical society meeting. Dr. Wende was born in Erie County, N. Y., in 1867. He received his degree in medicine from the University of Buffalo in 1889, and then spent three years in postgraduate study in this country and in Europe. In 1892 he joined the faculty of his alma mater and continued active teaching to the time of his death. A leader in his specialty, he held staff positions on the Erie County, General, German, Children, Sisters and City hospitals in Buffalo. Dr. Wende was active also in general medical affairs. His idealism was recognized by the presidency of the Medical Society of the State of New York, by the chairmanship of the Section on Dermatology of the American Medical Association in 1909 and 1910, and by continuous membership for several years in the House of Delegates. He had also been president of the American Dermatological Association. During the World War he served in the Surgeon General's Office. His literary contributions appear in many scientific periodicals, and he found time for research in the midst of an extensive, but well nigh perfectly organized dermatologic practice. The death of Dr. Wende came as a serious blow to many institutions and activities in which he took a prominent part. The University of Buffalo and the city itself suffered the loss of an inspirational leader and a man whom students and citizens held in universal high esteem.

John William Freeman ✠ Lead, S. D.; New York University Medical College, 1879; past president of the South Dakota State Medical Association and the Black Hills District Medical Society; member of the state board of medical examiners, 1903-1905; health officer of Lead, 1910-1917; for several years president of the state board of medical examiners and board of health; for nine years member and for two years president of the board of education; for many years on the staff of the Homestake Hospital; director and vice president of the First National Bank of Lead; aged 72; died, February 2.

Morris Ephraim Alexander ✠ Waterbury, Conn.; University and Bellevue Hospital Medical College, New York, 1916; member of the American College of Physicians; formerly clinical assistant in medicine, Yale University School of Medicine, New Haven; on the staffs of St. Mary's and Waterbury hospitals; aged 34; died, January 1, of Addison's disease.

Arthur Blaise Supple ✠ Chicago; Northwestern University Medical School, Chicago, 1909; instructor in gynecology and formerly clinical assistant in gynecology at his alma mater; served during the World War; on the staff of St. Luke's Hospital; aged 38; died suddenly, February 4, of organic heart disease.

Ralph William Seiss ✠ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1883; formerly lecturer on pathology, Woman's Medical College of Pennsylvania; at one time on the staff of the Pennsylvania Institution for the Deaf; aged 64; died, January 2, of bronchopneumonia.

Ferdinand Martin Schulz, Pasadena, Calif.; Rush Medical College, Chicago, 1890; for eight years commissioner of health of Milwaukee, and for fourteen years superintendent of the Milwaukee County Hospital; aged 65; died, January 30, at the Pasadena Hospital.

Edward J. McGeehan, McAdoo, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1892; member of the Medical Society of the State of Pennsylvania; for many years member of the board of health; aged 67; died, in January, of cerebral hemorrhage.

Benjamin L. W. Floyd, Evansville, Ind.; Kentucky School of Medicine, Louisville, 1896; member of the Indiana State Medical Association; secretary and past president of the Ohio Valley Medical Association; aged 55; died suddenly, January 27, of angina pectoris.

John Densmore Brewster, Windsor, Vt.; University of Vermont College of Medicine, Burlington, 1879; Medical Department of the University of the City of New York, 1880; member of the Vermont State Medical Society; aged 75; died, January 20.

Samuel T. Crowson, Taylorsville, N. C.; University of Tennessee College of Medicine, Memphis, 1904; formerly member of the state legislature and for many years county physician; aged 48; died suddenly, January 12, of heart disease.

Jack Harrison Ayers, New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1924; assistant surgeon, U. S. Public Health Service; aged 25; died, January 24, at the U. S. Marine Hospital, no. 19, San Francisco.

Eren Duffin Hodges, Ranger, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, Fort Worth, 1914; aged 37; died, Nov. 19, 1925, at the Base Hospital, Fort Sam Houston, following a long illness.

Edwin W. Martin, Fremont, Neb.; Cincinnati College of Medicine and Surgery, 1881; member of the Nebraska State Medical Association; past president of the Dodge County Medical Society; aged 80; died, January 27, of senility.

Benjamin Merrill Ricketts, Mount Gilead, Ohio; Miami Medical College, Cincinnati, 1881; member of the Western Surgical Association; aged 67; died, January 22, at the Marion (Ohio) City Hospital, of Hodgkin's disease.

Albert Tolman Wakefield, Sheffield, Mass.; Jefferson Medical College of Philadelphia, 1878; member of the Massachusetts Medical Society; aged 72; died, Nov. 4, 1925, of a fracture of the hip and diabetes mellitus.

Charles Joseph Cummings ✠ Williamsport, Pa.; College of Physicians and Surgeons, Baltimore, 1903; past president of the Lycoming County Medical Society; aged 65; died, January 28, of cerebral hemorrhage.

Charles Edward Bigelow, Leominster, Mass.; Jefferson Medical College of Philadelphia, 1882; member of the Massachusetts Medical Society; chairman of the board of health; aged 70; died, February 1.

Harry Cairnes Algire, Baltimore; University of Maryland School of Medicine, Baltimore, 1895; aged 52; died, January 24, at St. Joseph's Hospital, of bronchopneumonia, following a fracture of the leg.

Joseph Friend Harris ✠ New York; Albany Medical College, 1906; member of the New York Neurological Society; on the staff of Mount Sinai Hospital; aged 43; died, January 3, of cerebral hemorrhage.

James Loughridge, Folsom City, Calif.; University Medical College of Kansas City, Mo., 1899; member of the California Medical Society; formerly a practitioner in Kansas; aged 58; died, January 28.

Thomas E. Howle, Hartsville, S. C.; Medical College of the State of South Carolina, 1894; member of the South Carolina Medical Association; aged 67; died, January 20, of pneumonia.

Anna Louise Bacon, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1894; aged 76; died, Nov. 6, 1925, at the Woman's Hospital, of cerebral hemorrhage and arthritis.

George Grattan Painter, Pulaski, Va.; College of Physicians and Surgeons, Baltimore, 1883; member of the Medical Society of Virginia; aged 68; died, January 23, following a long illness.

Tillman Howard Hunt, Albany, Mo.; American Medical College, St. Louis, 1878; Eclectic Medical Institute, Cincinnati, 1884; aged 83; died in January, at Emporia, Kan., of uremia.

Thomas Owen Pendleton, Pilot Grove, Mo.; Missouri Medical College, St. Louis, 1877; member of the Missouri State Medical Association; aged 73; died in January, of heart disease.

John Smedley Stetson, Chazy, N. Y.; Medical Department of the University of the City of New York, 1892; member of the Medical Society of the State of New York; died, January 28.

James Taylor ✠ Edmonton, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1898; aged 48; died, January 24, of heart disease.

Allen George Heard ✠ Houston, Texas; University of Texas Department of Medicine, Galveston, 1906; served during the World War; aged 44; died, January 21, of pneumonia.

John Parks Dugan, Springfield, Ohio; Miami Medical College, Cincinnati, 1883; member of the board of education for twenty years; aged 66; died, January 22, of angina pectoris.

James R. Daniel, Clarence, Mo.; Missouri Medical College, St. Louis, 1888; member of the Missouri State Medical Association; aged 65; died, January 25, at Rochester, Minn.

John S. Nitterauer ✠ Ontonagon, Mich.; Hahnemann Medical College and Hospital, Chicago, 1880; formerly health officer of Ontonagon; aged 78; died, January 24.

Romulus Z. Linney ✠ Charlotte, N. C.; Georgetown University School of Medicine, Washington, D. C., 1901; aged 48; died, January 20, of cerebral hemorrhage.

Charles Lewis Webster, Trenton, Mo.; Missouri Medical College, St. Louis, 1894; member of the Missouri State Medical Association; aged 55; died, January 30.

Thomas G. Calhoun, Tenaha, Texas; Marion-Sims College of Medicine, St. Louis, 1892; aged 55; died, January 23, of injuries received in an automobile accident.

John Henry Bolton, Baltimore; University of Maryland School of Medicine, Baltimore, 1862; aged 85; was found dead, January 25, of accidental gas asphyxiation.

Levi M. Imhoff, Olivesburg, Ohio; Cleveland College of Physicians and Surgeons, 1888; aged 67; died, January 20, of chronic nephritis and heart disease.

Jennie L. Edington Eddy, Marysville, Kan.; Kansas Medical College, Topeka, 1898; member of the Kansas Medical Society; aged 57; died, January 28.

John Michael Davey, Ponca, Neb.; Sioux City College of Medicine, 1905; aged 43; died, January 28, at St. Vincent's Hospital, Sioux City, of pneumonia.

Charles Wesley Worth, Jersey City, N. J.; Howard University School of Medicine, Washington, D. C., 1916; aged 42; died, Dec. 28, 1925, of pneumonia.

Charles H. Bateman, Bradfordsville, Ky.; University of Nashville Medical Department, 1890; aged 68; died, January 29, following a long illness.

Edgar William Young ✠ Everett, Wash.; Medical Department of the University of the City of New York, 1885; aged 68; died, January 11.

John Tilghman Yourtee, Brownsville, Md.; University of Maryland School of Medicine, Baltimore, 1865; aged 84; died, January 27, of senility.

Francis Henry Olin ✠ Southbridge, Mass.; University of Michigan Medical School, Ann Arbor, 1881; aged 70; died, January 15, of pneumonia.

Samuel Albert Foote, Rosseau, Ont., Canada; Trinity Medical College, Toronto, 1899; aged 60; died, Dec. 17, 1925, at Toronto General Hospital.

Pryor Lea Shelton, Plemons, Texas; University of Pennsylvania School of Medicine, Philadelphia, 1869; died in November, 1925.

M. A. Gunter, Jonesboro, Ill.; College of Physicians and Surgeons, Keokuk, 1878; aged 71; died, January 22, following a long illness.

John R. Shaffer ✠ Detroit; University of Michigan Medical School, Ann Arbor, 1876; aged 72; died, January 24, at a local hospital.

Canute Walter Ruus ✠ Chicago; University of Illinois College of Medicine, Chicago, 1909; aged 42; died, January 28, of pleurisy.

Henry F. Costello, Decatur, Ind.; Starling Medical College, Columbus, 1886; aged 63; died suddenly in January, of heart disease.

Irwin Willard Blake ✠ Buffalo, Wyo.; Rush Medical College, Chicago, 1896; aged 54; died, January 6, at Kansas City, Mo.

Thomas L. Booth, Oxford, N. C.; Medical College of the State of South Carolina, Charleston, 1883; died, January 25.

Anthony John Avenia, Brooklyn; Long Island College Hospital, Brooklyn, 1922; aged 29; died, January 30, of pneumonia.

George A. Bundren, Grubbs, Ark. (licensed, Arkansas, 1903); aged 79; died recently, of valvular heart disease.

Charles Edgar Wilson ✠ Kansas City, Mo.; Kansas City Medical College, 1889; aged 62; died, January 28.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

INNER-CLEAN

An "Intestinal Scourer" and "Aromatic Herb-Vegetable Compound"

"Inner-Clean," put out by the Inner-Clean Manufacturing Company of Los Angeles, is said to be the discovery of "Prof. Arnold Ehret"—whoever he may be—the "Originator of the Mucusless-Diet Healing System." Inner-Clean, we are told, "Assists Nature"; also, it "Progressively and Thoroughly Cleanses and Rejuvenates Relaxed, Flabby Intestines." The exploiters, unable to express their enthusiasm in mere prose, break into poetry:

"Not a Drug, but Nature's way—
"Makes you better day by day."

"Professor Arnold Ehret's startling discovery" has "set the Scientific Drugless Healing World to Thinking." The special efficiency of Inner-Clean is said to be due to its ability to remove from the intestines "hardened feces, mucus and other age-old uneliminated, imperfectly digested, fatty substances."

"It scours the Intestines as Effectively as a Brush," says the advertiser, and illustrates its action by showing a bottle-brush in use. Whatever your particular ailment may be, "whether Indigestion, Nervousness, Boils, Headache, Rheumatism, Gout, Constipation or a general run-down condition, it can be directly traced to a clogged condition of the bowels."

Those who order Inner-Clean by mail are sent, in addition to the preparation, a four-page leaflet advertising the "Mucusless-Diet Healing System" by Prof. Arnold Ehret. The "system," apparently, is a book, which sells for $1.50, and is published by the Ehret Literature Publishing Co., having the same address as the Inner-Clean Manufacturing Co. The book is said to be the "result of a life-time of study by Prof. Ehret through actual contact with thousands of sufferers who regained health at his Sanitarium in Switzerland." Ehret's thesis seems to be that all ill health is due to constipation, which in turn is due to "wrong eating." The correction of this condition is that of taking up a "Diet of Healing," which must also be "combined with fasting."

THE JOURNAL has received a number of inquiries about Inner-Clean, and last September a woman consulted a San Francisco physician relative to what she thought were particles of glass that she had found in packages of Inner-Clean that she had purchased. The specimens were sent in by our correspondent and the substance in which she was interested was found to be not glass but sand.

The instructions that go with Inner-Clean suggest that those who use it avoid chewing it. In fact, a warning, "DO NOT MASTICATE" appears in black-face, capital letters in the directions that come with the package.

To determine just what other substances besides sand were in Inner-Clean, some packages were purchased direct from the exploiter and turned over to the A. M. A. Chemical Laboratory.

LABORATORY REPORT

"Two original boxes of Inner-Clean (Inner-Clean Mfg. Co., Los Angeles) were submitted to the A. M. A. Chemical Laboratory for examination. Each box contained about 50 grams (1⅔ ounces) of a greenish mixture having the appearance of coarsely chopped herbs, mainly leaves. According to the label, the product is "An Aromatic Herb, Intestinal Scourer and Stomach Cleanser." The amount of ash was found to be 8.3 per cent; sand was present to the extent of 1.6 per cent. Tests for metals and alkaloids were negative. Emodin-bearing drugs were present and also a mucilaginous-forming substance such as agar. Under the microscope the following substances were identified. The amounts given in parentheses are an *approximate estimate* based on microscopic examination, of the ingredients.

"Senna Leaves .....(approximately 8 parts)
"Agar .....(approximately 2 parts)
"Sassafras bark .....(approximately 1 part)
"A vegetable bark resembling Frangula..(approximately 1 part)

"From the foregoing the product appears to be essentially a coarse herb mixture (with a little sand) consisting mainly of senna leaves. A third specimen examined later showed 2 per cent of sand."

Here, then, we have a mixture of chopped-up herbs, mainly senna, with some indigestible residue in the form of agar and a varying amount of sand. The harm a mixture of this sort may do to an inflamed mucous membrane of the gastro-intestinal tract can be better realized by physicians than by the general public.

Correspondence

CHOLESTEROL SYNTHESIS AND HYPERCHOLESTEROLEMIA

In THE JOURNAL, Oct. 3, 1925, page 1066, an editorial appears entitled "The Synthesis of Cholesterol in the Body." It is indicated therein that feeding experiments have shown that cholesterol need not have its source exclusively in the diet.

We submit further evidence on this point in the form of Dezani's work (*Arch. di farmacol. sper.* **12**:4, 1914). He fed measured quantities of cholesterol to white mice, and on analyzing their entire carcasses, found that the total amount of cholesterol therein was greater than what could be explained on the basis of that ingested.

The subject of cholesterol synthesis comes to medical men by various avenues. Foremost among these are the various considerations associated with hypercholesterolemia, in connection with which certain tissue changes may come about or be experimentally induced. Some, notably the atheromatous aortas of rabbits, have been repeatedly and rather uniformly elicited, but others, such as xanthoma tuberosum, have occurred so irregularly that we are compelled to seek other factors that may enter into the cholesterol problem. One of these is our newer light as to the varying properties of cholesterol (spectroscopically [Lifschutz: *Biochem. Ztschr.* **62**:219, 1914; **54**:217, 1913], after irradiation [Beumer, H.: *München. med. Wchnschr.* **72**:1585, 1925], for instance), and now, the addition of any new supplementary means, of inducing a hypercholesterolemia, as by synthesis, will be a most welcome addition toward the same ends. Leupold and Seisser (*Arch. f. Gynäk.* **119**:552 [Sept.] 1923) have dipped into the surface in their experiments on the suprarenal cortices of cats, but we still look forward eagerly to the development of a practical method of inducing such a synthesis.

FRED D. WEIDMAN, M.D., Philadelphia.
F. WILLIAM SUNDERMAN, Philadelphia.

IRON IN ANEMIA

To the Editor:—The letter of Dr. Whipple (THE JOURNAL, January 30) needs a seconder, because the subject is of great importance. The assertion of Williamson and Ets (*Arch. Int. Med.* **36**:333 [Sept.] 1925) that inorganic iron is of no value in anemia is not true. From a clinical standpoint, bleeding an animal does not cause "anemia." Anemia is a distinct pathologic condition, primary or secondary. For laboratory experimenters to bleed animals and then to administer inorganic iron, and to state that it is of no benefit, but that food irons are of benefit, and then to draw the conclusion that inorganic iron is useless in the anemias of human beings, and broadcast the belief, is inexcusable. Such an assertion will certainly be used as an advertisement for the various organic irons on the market. Animals that have been bled, or human beings suffering from hemorrhage, do not have the iron content of the hemoglobin of the red corpuscles diminished. Clinicians do not administer iron to a patient who has had a hemorrhage with the idea of increasing the formation of new blood, but every clinician knows that a patient who has a low hemoglobin content of the red corpuscles will invariably have the hemoglobin content raised by the administration of an inorganic iron, unless the patient is in such a serious condition that death will soon occur. I do not wish, of course, to underestimate the great value of iron-containing foods in all cases of anemia.

OLIVER T. OSBORNE, M.D., New Haven, Conn.

"HEROISM AND SCIENTIFIC PROGRESS"

To the Editor:—The editorial on "Heroism and Scientific Progress" in THE JOURNAL, February 6, rightly calls attention to the sacrifices made in the progress of medicine. Without any intention of detracting from the credit of the three men mentioned as martyrs to science, I cannot see why these have been selected above others who deserve equal credit, having paid the price of their devotion with their lives.

In this country the name of James Francis Coneffe should always be mentioned in connection with that of Ricketts, since he died of the same disease as Ricketts, contracted during his experiments on it. Thomas L. McClintick of the Public Health Service, and A. H. McCray of the Montana State Board of Health, lost their lives while working on Rocky Mountain spotted fever, and deserve equal honor with those who you have mentioned. Among foreigners, the brilliant Walter Myers lost his life by the bite of a mosquito while studying yellow fever, and J. Everett Dutton died of African relapsing fever. Bubonic plague claimed Alexandre Yersin and Hermann F. Müller.

These are well known and clear cases of death following the bite of infected insects while studying disease. Certainly there is glory enough for all of them, and invidious distinctions should not be drawn by mentioning some and not others.

MAZYCK P. RAVENEL, M.D., Columbia, Mo.

COMPULSORY HEALTH INSURANCE

To the Editor:—Compulsory health insurance concerns itself with the great economic problem of the wage earner. It has for its basis insufficient wages, or wages out of which no surplus is left to cover the needs during a period of illness. One of the needs being medical care, health insurance proposes to stand sponsor for that item.

But medical attention is only one of the needs of a sick wage earner. He needs rent, clothing, bread, nursing and several other necessaries, even though he is ill. Therefore, if health insurance is contemplated at present, the next logical step to ameliorate conditions is compulsory bread or food insurance and compulsory rent insurance. That is, the move-

ment is in the direction of an industrial state in which the wage earner will have his domestic needs supplied.

That is one corrective for low wages. It appears that the desired social benefit can be more directly approached from the basic cause by sufficiently increasing the wages of employees. Incidentally, this would solve other social problems affecting the physicians, among which is the much complained of dispensary evil. Patients will then not require gratuitous and often ineffectual treatment that they receive in the dispensary, and the general practitioner will receive the fee to which he is justly entitled.

It is surprising to find a small group of physicians in favor of compulsory health insurance. It is disappointing that they view such a comprehensive subject from the acute angle of the physician's pocket, for social problems should be looked at with a broad and unselfish eye.

I often wonder what the opinion is of those physicians who supported compulsory insurance in 1917—whether they have changed their feeling on the subject in these few years. I have no doubt they realize that the industrial situation in this country is the problem the solution of which is fundamental, and that compulsory health insurance cannot be looked on as a panacea.

MORRIS H. KAHN, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COMBINING MERCURY WITH NEO-ARSPHENAMINE

To the Editor:—In the treatment of primary syphilis I am advised to give intravenous neo-arsphenamine and mercury simultaneously from the same syringe. On combining mercuric oxycyanide and neo-arsphenamine a black precipitate forms. Are they not incompatible?

D. D. SHONTZ, M.D., Massillon, Ohio.

ANSWER.—Neo-arsphenamine is a reducing agent; a solution of it would be incompatible with the common soluble mercury compounds (with compounds in which the mercury is ionized extremely slightly, reduction would not take place). In fact, all arsphenamines are such chemically reactive substances that no therapeutic agent should be combined with the usual forms of solution as used for intravenous administration. Alternation of drugs rather than simultaneous administration is the present trend in antisyphilitic medication. Mercury compounds intravenously should be given more frequently and over a longer time than is permissible for the administration of arsphenamine in sufficiently large doses. Furthermore, it is generally more advisable not to give intravenous mercury medication, but to employ other forms such as the insoluble salts (or certain soluble salts) intramuscularly, or to apply inunctions.

FOOD COMBINATIONS

To the Editor:—For some time I have been receiving questions regarding the danger of eating at one time foods containing starch and acid. I have always tried to find out why the persons asking the question held this idea. Usually, I have traced it to rather unreliable sources, such as the Defensive Diet League. However, a few days ago I saw a statement put out by a member of the faculty of a neighboring state university in which the danger of eating starch and acid mixtures, such as potato salad, was stressed. The reasons given were that the acid would hinder the digestion of the starch in the mouth, and, since the gastric juice has an acid reaction, that there would be no digestion of starch until after the food left the stomach. The article closed with this statement: "If the stomach digestion happens to be slow, there is ample time and most advantageous conditions for fermentation to take place." I shall appreciate it very much if you will tell me just how much and what danger there is, if any, from eating combinations of starch and acid at the same meal.

GRACE B. ARMSTRONG, Urbana, Ill.
Nutrition Specialist.

ANSWER.—We can find no authority verifying the danger of eating at the same time foods containing starch and acid. The subject offers a tempting field for speculation, and speculation easily runs into pet theories. The probable basis for the idea is the fact that salivary digestion occurs in a medium faintly alkaline to litmus. But the reaction of the medium is not by any means the only factor in salivary digestion.

Perhaps the most important rôle of mouth digestion is the mechanical preparation of food. It is also known that various stimuli to the secretion of salivary juice produce different kinds of saliva, and the kind and amount of saliva is influenced by the reaction and the food components of the meal.

Salivary digestion is continued in the acid stomach by means of the mechanism that holds food in the fundus. The duration of this intragastric salivary digestion depends to a great extent on the kinds of food eaten. Carbohydrates leave the stomach quickly, then protein and finally fat. A mixed meal remains in the stomach for a length of time depending on the proportion of the various foods in the meal. It is evident, then, that the amount of salivary digestion depends on many things.

One can, of course, theorize on these facts and deduce almost what one wishes. It would seem logical to assume that the common habit of eating salads—usually fruit or vegetables with a vinegar and oil mixture—answers a theoretical objection to starch and acid being eaten at the same time. For one sturdy race, potato salad is a staple dietary article.

It is difficult to avoid generalities in diet. Potato salad may not agree with all persons; nor does the acid orange juice disagree with all persons suffering from hyperacidity.

ENLARGED GLANDS IN THE NECK

To the Editor:—I have at present under treatment four patients with cervical lymphadenitis, a mother with her three sons. The two daughters have remained free. There is no history or signs of tuberculosis. The mouth and throat seem to be in good condition. Two became sick about a year and the other two six months ago. I have used arsenic and iodine but with no success. Could you suggest some treatment?

C. ASCUTIA, M.D., Indan, Camarines Norte, Philippines.

ANSWER.—In view of the rarity of the primary varieties of lymphatic gland enlargement, such as Hodgkin's disease, and the fact that heredity does not seem to be concerned in the causation of these, the familial appearance of the cervical lymph gland enlargement reported points to one of the secondary forms. Of the two varieties of secondary lymphadenitis, the lymphogenous and the hematogenous, the localized appearance of the swelling practically eliminates the hematogenous form such as that due to syphilis, which otherwise might well be familial in its occurrence. Secondary lymphogenous chronic cervical lymphadenitis is extremely common in children and young adults, especially those that are poorly nourished; and it is at times difficult to differentiate between the tuberculous and the nontuberculous form. In the differentiation between these the tuberculin test might be helpful, and still more useful would be the removal of one of the glands—which could probably be done under local anesthesia—for bacteriologic and microscopic examination.

In the treatment of this condition, hunting for foci of infection in the area tributary to the affected lymph glands and eliminating these, when found, should be the first endeavor. Raising the patient's resistance by abundant food, fresh air and rest, possibly with the addition of cod liver oil, would be probably next in importance. Roentgenotherapy in proper dosage and at suitable intervals is generally strikingly efficient. If the condition proves to be of tuberculous origin, properly graded tuberculin treatment, reactions being carefully avoided, may be of additional advantage.

IMPETIGO IN HOSPITAL NURSERY

To the Editor:—A week old baby in our nursery developed impetigo, about November 20. It was immediately isolated, but within the course of a few days two new cases were reported. Since then we have had fourteen cases, irrespective of whether the child was breast or bottle fed. A new case develops about every third or fourth day. Physicians have advised preventive methods, and we have tried many without success. To check the disease, we have: (1) washed the walls, ceilings, etc., of the nursery and delivery rooms; (2) fumigated with formaldehyde and potassium permanganate; fumigated with sulphur; (3) isolated mothers and babies infected, a special nurse serving only these patients; (4) treated the lesions with silver nitrate, 5 per cent, ammoniated mercury ointment, black wash, and mercurochrome-220 soluble; (5) as a preventive, given all babies an alcohol bath twice daily. Please give methods of combating our problem. If published, withhold name.

M.D., Missouri.

ANSWER.—The methods employed have been very good, although the fumigations were probably unnecessary. An article on this subject by Dr. J. Harper Blaisdell, entitled "The Management of Impetigo Contagiosa in Maternity Hospitals," was published in THE JOURNAL, Sept. 13, 1924, page 833.

DANGER TO HUMAN BEINGS FROM TUBERCLE BACILLI IN MILK

To the Editor:—1. Can you cite authorities that would prove or substantiate the statement that human beings may contract tuberculosis by drinking raw milk from tuberculous cows? Is there proof or authority for the statement that tuberculosis has been contracted by human beings due to drinking milk from tuberculous cows, the milk having been pasteurized? A. H. G.

ANSWER.—1. Paul G. Heineman ("Milk," 1919, page 459, with Park and Krumwiede as authorities) says:

These authors investigated 1,242 cases sent to them at random from various hospitals. The results show that among adults of 16 years or over suffering from tuberculosis—1.27 per cent; among children between 5 and 16 years—23.53 per cent; and among children below 5 years—23.21 per cent were infected with bovine tubercle bacilli.

On page 461 appears the following:

In adults tuberculosis caused by bovine bacilli is rare and might perhaps be called negligible, if it could be safely assumed that von Behring's theory of infection in childhood is incorrect. In children bovine infections constitute about one fourth of all cases of tuberculosis, and from 6½ to 10 per cent of the total fatalities from tuberculosis among children are due to bovine infections.

M. J. Rosenau in Preventive Medicine and Hygiene, ed. 3, 1917, page 137, writes:

About one quarter to one third of all cases of tuberculosis in children under 5 years of age is associated with the bovine type. It is probable that all these cases derive their infection through the tubercle bacilli in cow's milk.

L. C. Frank (A State Wide Milk Sanitation Program, *Pub. Health Rep.* **39**:2765 [Nov. 7] 1924) says:

Milk is responsible for a large amount of "bovine" tuberculosis among children, a damage which is more insidious and less easily traced than that caused by the more spectacular outbreaks of epidemic disease.

Joseph Garland (Milk and the Public Health, *Boston M. & S. J.* **189**:464 [Oct. 4] 1923) says:

The proper pasteurization of milk, despite the views of some investigators, undoubtedly removes the danger from bovine tuberculosis, as does boiling.

We find in Rosenau's book, on pages 582 and 583, these assertions:

Milk heated to 60 C. and held at that temperature for twenty minutes will kill the virus of tuberculosis. . . . It is advisable in commercial practice to heat milk to 65 C. for a period of thirty or forty-five minutes.

The general opinion thus seems to be that pasteurization will render milk safe, provided the pasteurization is properly done. An editorial in this issue deals with this subject.

PERTUSSIN

To the Editor:—The people manufacturing Pertussin circularize the profession with a statement that it is ethical in its dealings. I find this ad in the Chicago *Tribune*. My suggestion would be that the men using it discontinue to use it on the grounds that the house manufacturing it is not an ethical house. SAMUEL LERNER, M.D., Chicago.

ANSWER.—The reason the medical profession should refuse to prescribe Pertussin is not primarily that the stuff is advertised to the public, but that it is a product of indefinite composition, marketed under a nondescriptive, therapeutically suggestive name, and is exploited with misleading claims. Pertussin, the medical profession should realize, is one of many proprietaries which have been popularized through the uncritical testimonials given by physicians. As long ago as March 8, 1913, THE JOURNAL brought the facts before the profession in the following words:

It belongs to that class of vegetable preparations which, since they contain no distinctive principle, are difficult to analyze—particularly as concerns the "joker" in the formula, in this case "Ol. Thymi, et Thymol" and "Ext. Thymi 'Taeschner'"—hence there has been much dispute in Germany as to the composition of this nostrum. In general, it appears that whatever virtues it has are due to some preparation of common thyme in a menstruum containing water, sugar and alcohol.

Nearly six years ago (March 27, 1920) THE JOURNAL gave a formula for making a syrup of thyme, and stated that this "yields a product very similar to 'Pertussin' in taste, flavor, composition, and probably in activity as well." At the same time it was suggested that other aromatic expectorants, such as terebene, terpin hydrate or creosote, might be expected to have an effect similar to, but greater than, that of a syrup of thyme in bronchitis. For many years Pertussin has been exploited to the medical profession by the firm of Seeck and Kade. Recently display advertisements in newspapers have exploited Pertussin to the public, thus putting it frankly in the "patent medicine" class.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 2. Sec., Dr. Harry C. De Vighne, Juneau.

CALIFORNIA: Los Angeles, March 8-11. Sec., Dr. Charles B. Pinkham, Room 906, Forum Bldg., Sacramento.

CONNECTICUT: Hartford, March 9-10. Sec., Dr. Robert L. Rowley, 79 Elm St., Hartford. Homeo. Board, New Haven, March 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

IDAHO: Boise, April 6. Commissioner of Law Enforcement, F. A. Jeter, Boise.

MAINE: Portland, March 9-10. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 9-11. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

MISSOURI: Jefferson City, March 9-11. Chief, Licensure, Dr. Ross Hopkins, Capitol Bldg., Jefferson City, Mo.

MONTANA: Helena, April 6-8. Sec., Dr. S. A. Cooney, Helena.

NEW HAMPSHIRE: Concord, March 11-12. Sec., Dr. Charles Duncan, Concord.

NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. W. T. Joyner, Roswell.

OKLAHOMA: Oklahoma City, March 9-10. Sec., Dr. J. M. Byrum, Shawnee.

PORTO RICO: San Juan, March 2. Sec., Dr. D. Biascoechea, Box 804, San Juan.

Michigan October Examination

Dr. Guy L. Connor, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 13-15, 1925. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Of the 26 candidates examined, 24 passed and 2 failed. Sixty-seven candidates were licensed by reciprocity. The following colleges were represented:

PASSED			
College		Year Grad.	Per Cent
Howard University School of Medicine		(1925)	75, 77
Harvard University	(1923) 84.9,	(1924)	85.2
Detroit College of Medicine and Surgery		(1897)	87.5
Washington University School of Medicine		(1924)	87.4
University of Pennsylvania School of Medicine		(1924)	84.6
Dalhousie University Faculty of Medicine		(1923)	79.8
Queens University Faculty of Medicine		(1919)	84.4
Trinity Medical College	(1893) 87,	(1904)	82.8
University of Toronto Faculty of Medicine	(1920) 83.9, 87.4, (1921) 86.5, (1923) 86.3, (1924) 78.9, 82.3, 85.2		
University of Western Ontario Med. School	(1920) 88,	(1922)	88.1
McGill University Faculty of Medicine	(1924) 83.7,	(1925)	86.1
University of Jena, Germany		(1922)*	79.4
American University Medical School, Beriut, Syria		(1922)*	86.6

FAILED			
College		Year Grad.	Per Cent
University of Palermo, Italy	(1904)* 63.2,	(1920)*	65.2

LICENSED BY RECIPROCITY			
College		Year Grad.	Reciprocity with
College of Medical Evangelists	(1915),	(1923)	California
University of Colorado School of Medicine		(1924)	Colorado
George Washington University Medical School		(1924)	Dist. Colum.
Chicago College of Medicine and Surgery		(1917)	Ohio
Hahnemann Medical College and Hospital, Chicago		(1901)	Washington (1918) Illinois
Loyola University School of Medicine		(1921), (1925)	Illinois
Northwestern University Medical School		(1925)	Illinois, Iowa
Rush Medical College	(1897), (1920), (1923),	(1924)	Illinois
University of Illinois College of Medicine		(1914)	Wisconsin
Medical College of Indiana		(1896)	Illinois
State University of Iowa College of Med	(1922), (1924, 3)		Iowa
Kentucky School of Med., Louisville	(1890) Illinois,	(1891)	Kentucky
Tulane University of Louisiana School of Medicine		(1918)	Oklahoma
College of Physicians and Surgeons, Baltimore		(1909)	W. Virginia (1914) Ohio
Johns Hopkins University Medical Department	(1919), (1921), (1922),	(1924)	Maryland
University of Maryland School of Medicine		(1923)	Illinois
Harvard University		(1920, 2)	Mass.
Tufts College Medical School		(1924)	Mass.
University of Michigan Med. School	(1888) Illinois,	(1903)	Ohio
University of Minnesota Medical School	(1923),	(1924)	Minnesota
Barnes Medical College, St. Louis		(1899)	Missouri
St. Louis Univ. School of Med	(1919), (1921), (1924, 3)		Missouri
Washington University School of Medicine	(1920),	(1924)	Missouri
New York Homeopathic Med. Coll. and Flower Hosp		(1916)	New York
Syracuse University College of Medicine	(1923),	(1924)	New York
Cleveland College of Physicians and Surgeons		(1905)	Ohio
Ohio State University College of Medicine	(1923, 2)		Ohio
University of Cincinnati College of Med	(1923),	(1924)	Ohio
Jefferson Medical College of Philadelphia		(1921)	Texas
Medico-Chirurgical College of Philadelphia		(1914)	Mass.
University of Pennsylvania School of Medicine		(1922)	Penna.
Medical College of the State of South Carolina		(1915)	S. Carolina
Meharry Medical College	(1899,	(1901)	Tennessee
University of Texas Department of Medicine		(1924)	Texas
McGill Univ. Faculty of Med	(1923) Washington,	(1924)	Maine
Western University Faculty of Medicine		(1899)	Illinois
University of Bonn, Germany		(1923)	Iowa
University of Frankfort, Germany		(1921)*	Ohio
University of Wurzburg, Germany		(1920)*	Kansas

* Verification of graduation not completed by the American Medical Association.

Ohio December Examination

Dr. Henry M. Platter, secretary of the Ohio State Medical Board, reports the oral, written and practical examination held at Columbus, Dec. 2-4, 1925. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Of the 67 candidates examined, 64 passed and 3 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent
Howard University School of Medicine	(1925)	75.1, 75.8, 79
Chicago College of Medicine and Surgery	(1913)	77.6
Loyola University School of Medicine	(1925)	75
Johns Hopkins University Medical Dept.	(1923) 85.2, (1925)	83.4
University of Maryland School of Medicine	(1925)	81.6, 84.3
Harvard University	(1923) 82.2, (1925)	84.6
University of Michigan Medical School	(1925)	83.4, 86.2
University of Minnesota Medical School	(1925)	87.8
St. Louis University School of Medicine (1925) 80.3, 80.7, 80.8, 84.6, 85	(1923)	81.3,
John A. Creighton Medical College	(1903)	71.7*
University of Buffalo, Department of Medicine	(1924)	84.5
Eclectic Medical College, Cincinnati	(1925)	79.8
Ohio State University College of Medicine 80.6, 81.6, 84, 84.4, 84.8	(1925)	80.1,
University of Cincinnati, College of Medicine	(1925)	84.8
Western Reserve University School of Medicine	(1925)	85.5
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1925) 82.1, 82.3,	87.3
Jefferson Medical College of Philadelphia	(1925)	88.6
University of Pittsburgh School of Med.	(1924) 77.7, (1925)	81.8
Woman's Medical College of Pennsylvania	(1924) 82.9,	83.5
Meharry Medical College	(1925)	78.7
Dalhousie University Faculty of Medicine	(1924)	83.6
University of Toronto Faculty of Med. (1922) 85.2, 91.6, (1923) 85.5, (1924) 81.3, 85.8, (1925) 85.7	(1916) 84.1, (1921)	85,
University of Western Ontario Medical School	(1923) 84.6,	90.5
Western University Faculty of Medicine	(1922)	84.4
McGill University Faculty of Medicine	(1923) 76.2,	84.9
University of Vienna, Austria (1924)† 76.8	(1920)† 77.1, (1921)†	76.5,
National University of Athens, Greece	(1920)	76.4
Comenian University of Bratislava, Czechoslovakia (formerly Poszony)	(1921)†	78.7
University of Budapest, Hungary	(1906)†	79.1
University of Szegedin, Hungary	(1915)†	78.5
University of Naples, Italy	(1915)† 75, (1920)† 77.4, (1922)†	77

FAILED College	Year Grad.	Per Cent
Meharry Medical College	(1924)	67.3
University of Munich, Germany	(1924)†	71.5
University of Naples, Italy	(1923)†	70.9

* 3.3 per cent allowed for years of practice.
† Verification of graduation not completed by the American Medical Association.

Book Notices

CLINICAL RESEARCHES IN ACUTE ABDOMINAL DISEASE. By Zachary Cope, B.A., M.D., M.S., Senior Surgeon to Out-Patients, St. Mary's Hospital, Paddington. Cloth. Price, $4. Pp. 148, with 31 illustrations. New York: Oxford University Press, 1925.

This comprises "for the most part an expansion of the Arris and Gale lecture at the Royal College of Surgeons in 1922 and published in the *Lancet* the same year." The first chapter is devoted exclusively to a theoretical discussion on the scope of clinical research. Next is a consideration of the localization of abdominal pain through the function of the parietal peritoneum. This chapter mentions the old discussion relative to the presence or absence of nerves in the peritoneum, which has been decided in favor of the former. Following a consideration of muscular rigidity is a considerable number of pages on abdominal cutaneous hyperesthesia. The hyperesthetic areas are discovered by means of an ordinary pin held at a definite angle. The author furnishes a number of illustrations depicting the size of the sensitive zone in each of a number of pathologic processes. The next item is a consideration of the reference of pain from the area of distribution of the phrenic nerve to the region of the shoulder. Although this subject is not entirely new, the author brings out some new angles. In at least one of his conclusions he differs from the opinion of Capps. This concerns the relationship existing between the particular part of the phrenic nerve irritated and the distribution of the pain about the shoulder region. An interesting chapter is then devoted to the differential diagnosis between thoracic and abdominal conditions, especially such as those pathologic processes which lie just above or just below the diaphragm. A few pages are then given over to acute appendicitis with symptoms referable to the genito-urinary tract, which is then followed by the final chapter, dealing with subacute perinephric abscess occurring without disease of the kidney. On the whole, this little volume offers many points, not only valuable in a theoretical way but also of great service in everyday clinical problems. One finds practically nothing to criticize, but many reasons for praise.

ESSENTIALS OF PSYCHIATRY. By George W. Henry, M.D., Senior Physician, Bloomingdale Hospital. With a Chapter on Psychiatric Nursing. By Adele Poston, R.N. Cloth. Price, $2.75. Pp. 199. Baltimore: Williams & Wilkins Company, 1925.

In this small volume Dr. Henry has essayed the task of presenting the whole field of psychiatry in a form suitable for "the general practitioner, the student, the nurse and the social worker." He has taken as the basis of his subject the personality and its disorders, and to a considerable degree he has brought home clearly the possibility of a real understanding of the symptoms of mental disorders. The book, however, suffers seriously from its extreme condensation, which at times leads the author into very questionable assertions, such as that "neurasthenia . . . has as a common cause excessive sexual indulgence previous to and during the time when the symptoms are manifested." This is probably not intended as a definition, but from the manner in which it is presented it will probably be so regarded. Such statements are certainly open to question and are surely not suited for the type of reader for which the book is intended. Illustrative cases are used extensively in the text, but the relation of the words and acts described to the personality and faulty mental hygiene are often not even discussed; the untrained reader cannot fail to regard them as "symptoms" indicative of some "disease," and thus lose the understanding which the author has set himself to teach. The chapters on treatment and psychiatric nursing are in reality highly technical, though expressed in simple words; the need of special skill and knowledge on the part of those who would apply them are not sufficiently emphasized; no mention is made, for instance, of the dangers of unskilled psychanalysis. There is so much that is good in the book, particularly the brief chapter on mental hygiene, that one can only regret the defects that have resulted from attempting too much.

MUSCULAR ACTIVITY. (The Herter lectures for 1924.) By Archibald Vivian Hill, M.A., Sc.D., F.R.S., Professor of Physiology, University College, London. Cloth. Price, $2.75. Pp. 115, with illustrations. Baltimore: Williams & Wilkins Company, 1926.

This consists of four lectures given by Professor Hill at Johns Hopkins University. In these lectures are set forth in some detail the results of investigations on the physiology of muscular activity and the nature of muscular contraction conducted by Professor Hill and his associates, and by Professors Meyerhof of Germany, Krogh of Copenhagen, and Hopkins and Fletcher of Cambridge University, England. The ingenious methods developed by these authors for further elucidation of the physical and chemical phenomena in muscular contraction are described. Among the interesting conclusions arrived at are that oxygen is needed, not for muscular contraction, but for the recovery of the muscle after contraction, and that the only source of energy for muscular contraction is glycogen and not, as Lusk maintains, also fat. The fourth lecture deals particularly with recovery processes after exercise in man. This chapter is of particular interest to those interested in physical therapy and physical education. The facts and theories are set forth in a clear and lucid style, and the author succeeds in maintaining interest by his clear and impartial exposition. To each chapter is appended a short bibliography, and there is an index.

MASSAGE AND THERAPEUTIC EXERCISE. By Mary McMillan, Director of Physiotherapy "Courses for Graduates," Harvard Medical School, 1921-1925. Second edition. Cloth. Price, $2.50. Pp. 331, with 117 illustrations. Philadelphia: W. B. Saunders Company, 1925.

This is a concise and yet fairly complete and practical manual on physical therapy, chiefly massage and therapeutic exercise, but also with references here and there to the use of electrotherapy, hydrotherapy and phototherapy, where the latter procedures link with the former. It may be recommended not only to physiotherapy aides but also to medical students, for whom a course such as outlined here would be of the greatest possible value.

ULTRA-VIOLET RADIATION AND ACTINOTHERAPY. By Eleanor H. Russell, M.D., B.S., and W. Kerr Russell, M.D., B.S. Cloth. Price, $3.50. Pp. 262, with 77 illustrations. New York: William Wood & Co., 1925.

This is a modest, concise treatise, written with a simplicity of style and a conservatism that is pleasing. The authors state that they have deliberately avoided any temptation to empiricism and enthusiasm. The material for the book was drawn from the extensive experience of the collaborators, who served in a large war pension hospital in England, as well as from critical observation in private practice. The book describes principally the use of ultraviolet radiation in the authors' own practice. The subject matter is logically arranged and simply presented, and the theoretical portion, that dealing with the chemical and biologic factors of radiant energy, is well substantiated by authentic laboratory findings. The mechanical construction of ultraviolet emanation apparatus is broadly dealt with and the relative merits of the mercury vapor lamps versus the carbon arc or impregnated tungsten carbon is intelligently discussed, the tungsten carbon lamp being assigned a place of value. In the second half of the book, dealing with the practical application of ultraviolet energy to disease, the "tempered enthusiasm" of the authors seems to slip. One cannot wholly accept the statements that "primary sores, condylomata and gummata have all been successfully treated with ultraviolet rays," or that "cirrhosis of the liver and chronic inflammatory lesions of the gallbladder are other conditions in which good results have been reported," without stretching credulity to an uncomfortable point.

GYNÉCOLOGIE CHIRURGICAL, GENITO-STATIQUE. Par C. Sobre-Casas, Chef du service de gynécologie de l'Hôpital Torcuato de Alvéar. Preface du Dr. Doleris, Membre de l'Académie de médecine. Paper. Price, 25 francs. Pp. 40, with 37 illustrations. Paris: Masson et Cie, 1925.

This is from the gynecologic department of the Torcuato de Alvear Hospital (Buenos Aires). It is written in French instead of the Spanish one would expect, and seems rather to incline toward the French traditions of medicine. This tendency receives support, too, from the introduction furnished by Dr. Doleris. The title emphasizes the purpose of the author to follow the physiologic laws of the pelvis in all surgical intervention. Dr. Sobre-Casas holds it to be the first duty of the operator to avoid all organic injury and no less important to conserve pelvic tissue and promote the return of the pelvic machine to normal function. This is a high and laudable ambition which is only too often disregarded. The author takes up in detail and explains by excellent illustrations the various steps in such operations as hysterectomy with suspension, conservative salpingectomy, tunnelization of the round ligaments, uterine prolapse of different degrees, and perineal repair. The volume is not intended to be exhaustive; but in expressing a welcome to this South American contribution and the gratification inspired by its idealistic purpose, we may hope that the next edition will be amplified.

AN INDEX OF TREATMENT BY VARIOUS WRITERS. Edited by Robert Hutchison, M.D., F.R.C.P., Physician to the London Hospital, and James Sherren, C.B.E., F.R.C.S., Surgeon to the London Hospital. Ninth edition. Cloth. Price, $12. Pp. 1035, with 108 illustrations. New York: William Wood & Co., 1925.

This edition has been brought to date by the inclusion of many advances since the appearance of the previous edition. Time and space will not allow critical consideration that a work of this sort merits. If it were possible, however, to bring home to the attention of the young man just going out into practice the advice given in the introduction, much might be done to prevent him from "being blown about by every wind of doctrine." Sanity in the practice of medicine cannot be too strongly emphasized. While one might differ with the authors in many things, still, for a work of its sort, this is a good outline of therapeutics.

THE BERRET. A Series of Asylum Romances. By George Anthony Zeller, M.D., Managing Officer of the Peoria State Hospital. Paper. Gratis. Pp. 114. Department of Public Welfare (Illinois), 1925.

Truth is never as good reading as fiction, unless perhaps developed by the trained writer of fiction. These sketches of nine patients observed in an asylum for the insane have unfortunately the difficulty of representing truth in an attempt at fictional form. They must be of great interest to those familiar with the environment, but have, unfortunately, little literary interest for the general reader. It would be fascinating to see what could be done with the outlines here presented by a writer with the qualities of Edgar Allen Poe or an O. Henry.

CHIRURGISCHE OPERATIONSLEHRE FÜR STUDIERENDE UND AERZTE. Von Prof. Dr. Friedrich Pels Leusden, ord. Prof. der Chirurgie und Direktor der chirurgischen Universitätsklinik und Poliklinik zu Greifswald. Fourth edition. Paper. Price, 18 marks. Pp. 832, with 771 illustrations. Berlin: Urban & Schwarzenberg, 1925.

Many surgeons feel that the literature has reached a point of saturation in books dealing with operative technic; that fundamental variations in surgical procedure have not justified the number of extensive works on operative surgery that have appeared. In its arrangement and scope, this work is like the average volume of its kind. There are preliminary chapters on anesthesia, antisepsis and methods of suturing. Subsequent chapters are devoted to regional surgery. The work is too condensed and too poorly illustrated to be of great material value.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits.

HANDBUCH DER SPEZIELLEN PATHOLOGISCHEN ANATOMIE UND HISTOLOGIE. Herausgegeben von F. Henke und O. Lubarsch. Zwölfter Band. Gehörorgan. Bearbeitet von A. Eckert, M. Koch, W. Lange, H. Marx, H. G. Runge, O. Steurer und K. Wittmaack. Paper. Price, 84 marks. Pp. 802, with 640 illustrations. Berlin: Julius Springer, 1926.

Complete systematic study of anatomy and pathology of the ear, profusely illustrated.

BALDNESS: ITS CAUSE AND PREVENTION. By George S. MacLeod. Cloth. Price, $1.50. Pp. 127, with 51 illustrations. Seattle, 1925.

After four years of study, author concludes that pressure of hat on blood vessels of scalp produces baldness!

TWENTY-THIRD ANNUAL REPORT (1924-1925) OF THE IMPERIAL CANCER RESEARCH FUND. Under the direction of the Royal College of Physicians of London and Royal College of Surgeons of England. London, 1925.

A review of money received and papers published; apparently efforts are being made to check up studies of Gye and Barnard.

UEBER DEN ZUSAMMENHANG ZWISCHEN DER ALBUMINURIE UND DER WASSERSTOFFIONENKONZENTRATION IM BLUT UND URIN. Inaugural-Dissertation. Zur Erlangung der medizinischen Doktorwürde mit Genehmigung der weiterfahrenen medicinischen Fakultät der Universität Uppsala Vorgelegt. Von Alfred Bjure. Paper. Pp. 237, with illustrations. Uppsala: Almqvist & Wikselles, 1925.

Physicochemical study of albuminuria.

STUDIES ON THE MORPHOLOGY AND MORPHOGENESIS OF HUMAN THORACOPAGIC MONSTERS. With special reference to the malformation of the heart. Inaugural Dissertation. By Fredrik Ysander. Paper. Pp. 236, with illustrations. Uppsala: Almqvist & Wikselles, 1924.

Detailed embryologic analysis as to etiology of monsters.

PATHOLOGISCH-ANATOMISCHE STUDIEN ÜBER DIE OSTEODYSTROPHIA FIBROSA (SOG. OSTITIS FIBROSA V. RECKLINGHAUSEN). Akademische Abhandlung zur Erlangung der medizinischen Doktorwürde mit Genehmigung der weiterfahrenen medizinischen Fakultät zu Uppsala Vorgelegt. Von Ture Stenholm. Fil. Mag., Norrl. Paper. Pp. 211, with illustrations. Uppsala: Almqvist & Wikselles, 1924.

Author establishes relationship of osteodystrophy to disturbances of calcium metabolism and improper nutrition.

UNDERSÖKNINGAR ÖVER AEGGVITEFÄLLNING MED SYROR OCH SURA SALTLÖSNINGAR. Akademisk Avhandling som med tillstånd av Medicinska Fakulteten vid Uppsala Universitet för vinnade av medicine doktorsgrad offentligen försvaras å Fysiologiska Institutionens föreläsningssal lördagen den 17 januari 1925 kl. 10 f. m. Av B. Limberger. Paper. Pp. 68. Stockholm: P. A. Norstedt & Sons, 1924.

TRANSACTIONS OF THE AMERICAN OPHTHALMOLOGICAL SOCIETY. Sixty-first annual meeting, Washington, D. C., 1925. Philadelphia: American Ophthalmological Society, 1925.

REPORT OF THE REGISTRAR GENERAL. For the fiscal year ended June 30, 1923. Board of Health of the Territory of Hawaii. Honolulu, 1925.

MEMÓRIAS DO INSTITUTO DE BUTANTAN, 1925. Tomo II—Fasciculo Unico. Paper. Pp. 119, with illustrations. São Paulo, Brazil, 1925.

LACTOBACILLUS ACIDOPHILUS. By Nicholas Kopeloff, Ph.D., Associate in Bacteriology, Psychiatric Institute, Ward's Island, N. Y. Cloth. Price, $5. Pp. 211, with illustrations. Baltimore: Williams & Wilkins Company, 1926.

A general consideration concluding that "constipation, diarrhea and other intestinal disorders may be satisfactorily treated by *L. acidophilus*."

ULTRA-VIOLET RAYS IN THE TREATMENT AND CURE OF DISEASE. By Percy Hall, M.R.C.S., L.R.C.P. With introductions by Sir Henry Gauvain, M.A., M.D., M.C., Medical Superintendent, Lord Mayor Treloar Cripples' Hospitals, and Leonard E. Hill, M.B., F.R.S., Director, Department of Applied Physiology and Hygiene, National Institute of Medical Research, London. Cloth. Price, $3.75. Pp. 110, with illustrations. St. Louis: C. V. Mosby Company, 1924.

A rather careless collection of material illustrating various types of apparatus and making no attempt at actually scientific evaluation of clinical results.

SCOLIOSIS. Rotary lateral curvature of the spine. By Samuel Kleinberg, M.D., F.A.C.S., Assistant Surgeon, New York Hospital for Ruptured and Crippled. Cloth. Price, $6. Pp. 311, with 140 illustrations. New York: Paul B. Hoeber, Inc., 1926.

Monographic consideration, well printed and illustrated, dealing with both prevention and treatment of scoliosis.

INDUSTRIAL FERMENTATIONS. By Paul W. Allen, M.S., Ph.D., Professor of Bacteriology and Head of Department, University of Tennessee. Cloth. Price, $5 net. Pp. 424, with illustrations. New York: Chemical Catalog Company, Inc., 1926.

Practical discussion of food preservation, disinfection, and industrial processes involving fermentation.

LECTURES ON NUTRITION. A series of lectures given at the Mayo Foundation and the Universities of Wisconsin, Minnesota, Nebraska, Iowa, and Washington (St. Louis), 1924-1925. Cloth. Price, $2.50 net. Pp. 243, with 22 illustrations. Philadelphia: W. B. Saunders Company, 1925.

Symposium by noted investigators defining present knowledge of metabolism, vitamins and kindred subjects.

OUR PRESENT KNOWLEDGE OF HEREDITY. A series of lectures given at the Mayo Foundation and the Universities of Wisconsin, Minnesota, Nebraska, Iowa and Washington (St. Louis), 1923-1924. Cloth. Price, $2.50 net. Pp. 250, with illustrations. Philadelphia: W. B. Saunders Company, 1925.

The knowledge of heredity elucidated by well known investigators with especial attention to sex, acquired characters, cancer and eugenics.

MEDICAL FORMULARY. By E. Quin Thornton, M.D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. Twelfth edition. Cloth. Price, $2.50. Pp. 352. Philadelphia: Lea & Febiger, 1925.

A list of prescriptions recommended for various symptoms, based on the latest pharmacopeia, but the wrong way to learn pharmacology and therapeutics.

PRESCRIPTION NOTES. By Arthur L. Tatum. Leather. Price, $1.25. Pp. 22. Chicago: University of Chicago Press, 1925.

The elements of prescription writing with plenty of blank pages for recording prescription favorites.

MODERN MEDICINE. Its theory and practice in original contributions by American and foreign authors. Edited by Sir William Osler, Bart., M.D., F.R.S. Third edition. Reedited by Thomas McCrae, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia. Assisted by Elmer H. Funk, M.D., Assistant Professor of Medicine, Jefferson Medical College, Philadelphia. Volume II. Diseases of doubtful etiology; diseases caused by protozoa, spirochetes and animal parasites; diseases due to physical, chemical and organic agents; deficiency diseases. Cloth. Price, $9. Pp. 891, with illustrations. Philadelphia: Lea & Febiger, 1925.

Good revision of this standard work, bringing each subject up to date.

THE DISEASES OF CHILDREN. By the Late Sir James Frederic Goodhart, M.D., LL.D., F.R.C.P. Edited by George Frederic Still, M.A., M.D., F.R.C.P., Professor of Diseases of Children, King's College, London. Twelfth edition. Cloth. Price, $8.50. Pp. 966, with 68 illustrations. Philadelphia: Lea & Febiger, 1926.

The last edition of this standard English textbook appeared in 1920, giving opportunity for much excellent revising by Dr. Still.

Miscellany

EARLY POSTMORTEM EXAMINATIONS BY EUROPEANS IN AMERICA

LUDVIG HEKTOEN, M.D.
CHICAGO

July 10, 1533, a double female monster was born in San Domingo. Oviedo (1478-1557), the author of Historia General y Natural de las Indias, saw the twins the next day and describes them as fused from the umbilical region to just below the breasts, the right side of the larger twin being joined to the left side of the smaller. There was a single navel, two legs, two arms and two breasts, and each head had good features ("each would have been a beautiful woman"). From the father's answers to those in authority it was deduced that it concerned two individuals and two souls, and accordingly the twins were baptized as Johanna and Melchiora. In order to escape all possible difficulty, the priest who baptized them made use of the formula required for the baptism of those concerning whose previous baptism there is doubt. The twins lived eight days, and a postmortem examination was made to study further the question of whether they were one or two individuals. Oviedo was present and he recorded the observations at what seems to be the first necropsy by Europeans in the new world as follows:

"Having died the night before, on the eighteenth day of the same month and year [July, 1533] their parents gave consent to their being opened; when they had been placed on a table, the bachelor, Johan Camacho, master surgeon, opened them in the umbilical region with a lancet in the presence of Hernando de Sepulveda and Rodrigo Navarro, doctors of medicine, and drew out all the viscera; and they had everything that is to be found in two human bodies as follows: There were two sets of guts, the intestinal tracts were distinct and separate, in each were two kidneys and two lungs; each had a heart, and there was a liver and biliary apparatus for each; but the livers were joined one to the other, with, however, a furrow or line between the two which clearly showed the part that belonged to each. And having been opened in this way it was seen that the umbilicus or navel, which from without appeared to be one, was divided within into two canals, or cords, and that each one of them went within to its proper body or creature to which it belonged, although it appeared from without as I have said to be single."

The results of the examination were held to support the deduction that Johanna and Melchiora were two individuals and they were officially spiritually disunited.[1]

So far as we know now, Champlain records the next earliest postmortem examinations in America. These appear to be the first examinations of adults and also the first for the purpose of delving into the nature of disease. Champlain spent the winter of 1605 on St. Croix Island. In the original edition of his Voyages (Paris, 1613) he writes (livre 1, chap. VI, pp. 53-54):

"During the winter many of our people suffered from an illness called 'mal de terre,' or scurvy, a name since given by the doctors. In the mouths of the afflicted were large pieces of sloughing flesh with great putrefaction. The condition grew worse until they could not take food, not even liquid easily. The teeth were loose and could be removed with the fingers without pain. Cutting away the sloughing flesh caused much bleeding. Later there was severe pain in the arms and legs, causing great distress; and because of the contraction of the nerves, the patients could not walk Even passive movements were painful. There were also pains in

1. This account is abstracted from the interesting article by A. Pena Chavarria and P. G. Shipley on The Siamese Twins of Espanola (the First Known Postmortem Examination in the New World) in the Annals of Medical History 6: 297, 1924.

the kidneys, stomach and intestines and shortness of breath. Many fell into syncope, and out of seventy-nine affected, thirty-five died. Most of those that recovered complained of some pain and shortness of breath."

The course was not influenced by any of the remedies that were used, and several bodies were examined in order to discover the cause of this "very cruel malady."

"In the case of many," writes Champlain, "the interior parts were found mortified, such as the lungs, which were so changed that no natural fluid could be perceived in them. The spleen was serous and swollen. The liver was legueux [woody] and spotted without its natural color. The vena cava, superior and inferior, was filled with thick coagulated and black blood. The gall was tainted. Nevertheless, many arteries, in the middle as well as lower bowels, were found in very good condition. In the case of some, incisions with a razor were made on the thigh where they had purple spots, whence there issued a very black clotted blood. This is what was observed on the bodies of those infected with this malady. Our surgeons could not help suffering themselves in the same manner as the rest. Those who continued sick were healed by spring, which commences in this country in May. That led us to believe that the change of season restored their health, rather than the remedies prescribed."[2]

Champlain passed the following winter at Port Royal. He writes (Voyages, chap. XI, p. 101):

"After having examined it [copper mine] we returned to our settlement, where we found some of our men ill with scurvy, though not so seriously as at Ste. Croix island. Yet, of the forty-five of us twelve died, of whom our miner was one, and five were ill who recovered on the approach of spring. Our surgeon, named Des Champs, of Honfleur, a man skilled in his profession, opened some of the bodies to see if he could discover the cause of this illness better than had those who had tried in the previous year. He found the same parts of the body affected as in those opened on Ste. Croix island, and could discover no remedy for curing them any more than had the others."

Champlain's surgeons were pioneers in the study of scurvy. It is noteworthy that their necropsies in Champlain's winter camps were made at a period when the necropsy as a method of studying disease was still in its earliest stages.

Medicolegal

Liability of Charitable Institutions for Injuries

(St. Mary's Academy of Sisters of Loretto of City of Denver et al. v. Solomon (Colo.), 238 Pac. R. 22)

The Supreme Court of Colorado says that plaintiff Solomon recovered a judgment for $6,000 for expenses and loss of society caused by injury to his wife in an automobile accident. It was contended that the defendant corporations were not liable for torts (wrongful acts) because those corporations were charitable institutions. The question was a new one in this court. The conclusions in the decisions in England, Canada and America are many and hopelessly different; the arguments by which they are reached are more so, and are confused by resort to the analogy of the liability or nonliability of governments and governmental agencies. On the one extreme it is held that a charitable institution is not liable for torts at all and, on the other, that it is liable for torts like any person. Between, this court finds it held that a charitable institution is liable to strangers, third persons they are usually called, but not to its own beneficiaries; also that it is liable to its employees, but not to its own beneficiaries; again, that it is liable only for negligently selecting incompetent servants, but not for the tort of a servant selected without negligence. Each party attempted to persuade this court that its side represented the trend of modern decision, but this court does not find that to be true; on the contrary, there are two parallel lines of cases, reaching back three quarters of a century or so, and coming down to the present time, sometimes varying in the same jurisdiction, according to the judgment, bias or prejudice of the court having the matter in hand, or the judge writing the opinion.

The fundamental question is one of expediency or of public policy—whether the preservation of charitable trust funds is more desirable than a right to compensation from such funds for an injury. This court thinks it is. Few things are more desirable or more beneficial to the public than charitable foundations, and certainly the right of some one to recover damages from a particular source is not one. Again, if it be said that a judgment in tort may be permitted against a trustee and enforced against the charitable trust fund, it cannot be denied that he might pay the damages out of that fund without judgment, which would put trust funds in a somewhat precarious position.

This court holds that a charitable trust fund may not be depleted by the tort of the trustee, but it does not logically follow that no judgment can be rendered against him. He may be liable, and yet the trust fund not. The charters of the defendant corporations were not in evidence. If they were, and it appeared that the corporations had no powers but as charitable trustess, this court would reverse the judgment that was rendered against them. But the assumption was that they had power to hold other property. If they had, there was no more reason to say that they were not liable for torts than to say that a natural person is not because he has no property not exempt from execution. This court thinks that the judgment against these corporations was valid, but that no property which they hold in charitable trust can be taken under execution on it, and if and while they hold no property but in such trust this judgment cannot be collected of them. This court must so hold because it thinks that the true reasoning to be gathered from all the cases compels it.

Continuous Disability from Date of Accident

(Booth v. United States Fidelity & Guaranty Co. (N. J.), 130 Atl. R. 131)

The Supreme Court of New Jersey says that the question presented was whether the plaintiff was entitled to recover under a clause in an insurance policy which provided for full indemnity in case he should meet accidental injury, which "shall, independently and exclusively of all other causes, continuously and wholly disable and prevent the insured from the date of accident from performing any and every kind of duty pertaining to his occupation." He was a ship surveyor and inspector. May 19, 1924, he accidentally fell, was struck on head and chin, and was rendered insensible. On recovering his senses he had the apparent and superficial wounds and injuries dressed and went to his temporary residence. He immediately complained of dizziness, headache and blurred vision, and that his eyes "had gone bad on him." From the time of the accident his vision was impaired, he could read only one letter of a word at a time, and seemed unable to comprehend the whole word at once. He could not write with his usual facility. He suffered pains in the head. From May 19 to June 20, he went to his place of employment and endeavored to perform his duties for a part of each day, but was unable to remain for the usual period of time, and was obliged to remain away entirely for one day in each week. The quality of his work fell off from the date of the injury and grew progressively worse. June 20, he became very ill, was only semiconscious, and lost the use of his voice and of his right arm and right leg. June 23, he suffered a complete paralysis of the right side. June 30, he was operated on for decompression of the brain.

The defendant insisted that the plaintiff was not wholly disabled and prevented from performing any and every kind of duty from the date of the accident, because he went to his place of employment and apparently performed some of the duties of his occupation; that he was not wholly disabled and prevented from performing them until June 20, when he

2. Champlain's Voyages 2: 49, 1878. Publications of the Prince Society. Translation by Charles Pomeroy Otis.

became paralyzed and was unable to get about at all. But, in view of the nature of the contract and the object sought, it is a fair and reasonable construction to hold that, where the injury is such that the results continue from the date of accident and wholly incapacitate the insured within such time as is required for the processes of nature to bring about such total disability, there is a continuous and total disability from the date of the accident. The fact that the plaintiff tried to work was not to be taken as conclusive evidence of his ability to do so, and he should not be penalized for honest efforts to keep going when nature demanded that he desist. Nor did the use of the word "prevent" mean that there should be a physical absence from the place of employment. The court takes the word in this connection to mean that the insured must be unfitted for his usual duties, and be hindered and impeded by his injury in performing them. Wherefore the court holds that the plaintiff was continuously and wholly disabled and prevented from the date of the accident from performing any and every kind of duty pertaining to his occupation.

Talking About Injuries to Defendant's Attorney

(Gallagher v. S. Z. Schutte Lumber Co. (Mo.), 273 S. W. R. 213)

The Kansas City (Mo.) Court of Appeals, in reversing a judgment for $6,000 damages for personal injuries which was rendered in favor of the plaintiff, says that the plaintiff called as a witness the physician who had attended him, and, on redirect examination, the physician was asked certain questions for the asserted purpose of showing his interest, but which were objected to as constituting an attempt of the plaintiff to impeach his own witness. Among other questions, the physician was asked as to the attorney for the defendant having seen him about this case, and whether he had asked his patient's (the plaintiff's) consent before he disclosed facts to the defendant's attorney. In his argument to the jury, counsel for the plaintiff said that the attorney for the defendant "Gets up with a paper of some kind. 'Isn't it a fact, Dr. So and So, that it was not until after you came back from the x-ray room that Gallagher said anything about this old injury? A. Yes, sir; yes, sir. Isn't it a fact, so and so and so'—facts that he could have only known by some prior conference with the doctor." Again, the attorney said: "It is within the evidence. It was there, gentlemen, that the doctor told Mr. Welch [the defendant's attorney] these facts without the consent of his patient; armed Mr. Welch with a lot of suspicions and nothing else."

That this testimony was submitted in an effort to impeach the plaintiff's own witness was beyond question. It was an intimation that Mr. Welch had in some manner influenced the physician's testimony. There was nothing in the record to show what was the conversation between Mr. Welch and the physician, but it may be assumed that it was concerning the plaintiff's injuries. While it was improper for the physician to have talked about the plaintiff's injury to the defendant's attorney, this circumstance by itself was insufficient to afford ground for the plaintiff to impeach his own witness.

It was insisted that the physician unexpectedly proved to be a hostile witness and that the plaintiff was entrapped and surprised by his testimony, and had the legal right to cross-examine him. But the record was absolutely devoid of anything of that nature. It would seem that the surprise with which the plaintiff was confronted by the physician's testimony was merely that he had talked to the defendant's attorney before the trial. While this conduct of the physician was improper, and was a matter in connection with which, if the plaintiff had shown that he had been entrapped or surprised by some testimony of the physician, he undoubtedly would have had the right to cross-examine the witness in reference to the subject, yet a party cannot put a witness on the stand and ask him questions showing that he has been guilty of some improper conduct, without showing surprise or entrapment, for this would violate the well known rule that a party may not impeach his own witness, whom he vouches for when he places him on the witness stand. So this court thinks, taking the cross-examination of the physician at the trial, combined with the argument to the jury, that the trial court committed error against the defendant. While a certain amount of discretion is vested in the trial court in ruling on matters of this kind, it seems to this court that the trial court permitted counsel to go too far.

Malpractice in Removing Cyst from Eye Not Proved

(Cardinale v. Kemp et al. (Mo.), 274 S. W. R. 437)

The Supreme Court of Missouri, division no. 1, says that in this action for alleged malpractice, brought by a boy 4 years old by his next friend, the petition charged the sole negligent act of the defendants to consist of negligently cutting the eyeball of the plaintiff with a sharp instrument, while removing a cyst from his left eye, and thereby so injuring it as to cause it to shrink and to lose its sight. The theory of the trial court was that the evidence for the plaintiff did not make out a case for the jury, and therefore that court sustained the defendants' demurrer to the evidence, whereupon the plaintiff took an involuntary nonsuit, with leave to move to have it set aside. When the motion to set aside the nonsuit was made it was overruled, and the judgment overruling it is here affirmed.

The supreme court is of the opinion that whereas the record here showed that the adhesion of the eyelid to the eyeball and the scar on the latter was shown to be eight months after the operation had been performed on the lid, no expert could, with any degree of certainty or even probability, say that it was caused by a sharp pointed knife, a blunt instrument, or deep-seated infection, any one of which, all the evidence on the subject showed, could have caused it, which was the common sense of the situation.

Again, it is true, as contended by counsel for the defendants, that all expert testimony must be predicated on facts or conditions conceded to be true, or existing or assumed to be established by other testimony, and that necessity excludes the possibility of basing one opinion on another opinion. In this case there was no proof of any sort that there was a cut of the plaintiff's eyeball by the defendant. This fact could not probably be proved by an opinion. To assume it, without any proof, as the producing cause of the condition found, would be to have the experts find the facts and decide the case on guesswork.

The law is also well settled that a plaintiff cannot make out his case by building one inference on another. In order for this plaintiff to prevail on the theory of his counsel, it would have to be inferred that the scar found on the eyeball was caused by a cut, and the further inference that the defendants caused the cut, and still further that the cut caused the loss of the eye. This could not be done.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Dallas, April 19-23. Dr. Olin West, 535 N. Dearborn Street, Chicago, Secretary.

American Association of Pathologists and Bacteriologists, Albany, New York, April 2-3. Dr. H. T. Karsner, Lakeside Hospital, Cleveland, Secretary.

American College of Physicians, Detroit, Feb. 22-29. Dr. Frank Smithies, 920 N. Michigan Ave., Chicago, Secretary.

American Congress on Internal Medicine, Detroit-Ann Arbor, Feb. 22-29. Dr. Frank Smithies, 920 N. Michigan Ave., Chicago, Secretary.

American Proctologic Society, Indianapolis, April 16-17. Dr. William A. Rolfe, 331 Beacon Street, Boston, Secretary.

American Society of Clinical Pathologists, Dallas, April 15-17. Dr. Ward T. Burdick, Metropolitan Building, Denver, Colo., Secretary.

Louisiana State Medical Society, Monroe, April 15-17. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

New York, Medical Society of the State of, New York City, March 29-April 1. Dr. D. S. Dougherty, 17 W. 43d St., New York City, Sec'y.

Oregon State Medical Society, Portland, April 1-2. Dr. F. D. Stricker, Medical Arts Building, Portland, Secretary.

South Carolina Medical Association, Sumter, April 6-8. Dr. E. A. Hines, Seneca, Secretary.

Tennessee State Medical Association, Memphis, April 13-15. Dr. J. F. Gallagher, Jackson Building, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Electrotherapeutics and Radiology, New York

43: 439-498 (Dec.) 1925

Light: Its Spectral Components in Therapeutics. F. C. Balderrey, Perrysburg.—p. 439.
Comparison of Ultraviolet Component Radiation from Carbon and Mercury Arc Lamps and from Sun. W. W. Coblentz, Washington, D. C. —p. 445.
Nonsurgical Aids in Treatment of Surgical Patients. A. J. Ochsner, Chicago.—p. 449.
History of American Electrotherapeutic Association. G. B. Massey, Philadelphia.—p. 451.
Phototherapy in Treating Hay-Fever. J. L. Myers, Kansas City, Mo. —p. 455.

American Journal of Medical Sciences, Philadelphia

170: 781-936 (Dec.) 1925

*Nature and Mode of Regulation of Glomerular Function. A. N. Richards, Philadelphia.—p. 781.
Human Constitution. III. Physical Types in Relation to Toxemias of Pregnancy. G. Draper, New York.—p. 803.
*Diagnosis of Subphrenic Abscess. R. Dexter, Cleveland.—p. 810.
*Generalized Tuberculous Adenitis: Case. L. H. Criep and F. C. Narr, Kansas City, Mo.—p. 822.
*Spontaneous Rupture of Heart. E. B. Krumbhaar and C. Crowell, Philadelphia.—p. 828.
*Relation of Morphology to Prognosis of Aortic Syphilis. W. W. G. Maclachlan, Pittsburgh.—p. 856.
Neurologic Mechanism of Angina Pectoris: Relation to Surgical Therapy. W. Penfield, New York.—p. 864.
*Lipiodol in Neurosurgery. A. S. Maclaire, New York.—p. 874.
*Acute Typhoid Cholecystitis Forty-One Years After Original Infection. L. A. Pomeroy and J. K. Shen, Cleveland.—p. 881.
*Effect of Roentgenotherapy on Human Heart. E. S. Emery, Jr., and B. Gordon, Boston.—p. 884.
Quantitative Determination of Intestinal Putrefaction. C. P. Sherwin, New York.—p. 888.
*(Left) Shoulder Pain of Phrenic Origin; Reflex Symptom in Chronic Appendicitis: Three Cases. I. Gray, Brooklyn.—p. 894.

Glomerular Function.—Richards says that evidence now exists on which to base belief that glomerular pressure and hence glomerular filtration is regulated not only by the gross circulatory events that have long been recognized, such as alterations in the arterial pressure, in the venous pressure and in the gross change of the renal vessels in relation to these, but also by fine adjustments of the caliber of the afferent and of the efferent vessel in relation to each other. The mode of adjustment is such as automatically to provide conditions suited to rid the blood of excess of any substances that dilate the renal arterioles and pass through the glomerular membranes. The more important normal urinary components very certainly possess these properties.

Subphrenic Abscess.—Six cases are reported by Dexter to emphasize the fact that subphrenic abscess is of insidious onset and that early diagnosis is infrequent. The most important and the most definite aid to the diagnosis is the roentgen-ray examination. Repeated examinations are of the utmost importance, not only in confirming the diagnosis but also in observing the course of the disease.

Tuberculous Adenitis.—A case of generalized tuberculous adenitis without any visceral tuberculosis is reported by Criep and Narr. The condition is getting progressively better and is of two years' standing. Clinically the condition may easily be confused with Hodgkin's disease, but biopsy and bacteriologic study will settle the diagnosis. A review of the literature discloses few such cases. There is no explanation as to how the glands may become involved in such a process without any visceral involvement.

Spontaneous Rupture of Heart.—Krumbhaar and Crowell present the results of a clinicopathologic study based on twenty-two unpublished cases of spontaneous rupture of the heart and 632 from the literature. Their own series of cases can be divided into the following five categories: (1) coronary sclerosis and thrombosis with myocardial fibrosis and necrosis, nine cases; (2) coronary sclerosis and thrombosis with myocardial fibrosis only, two cases; (3) coronary sclerosis only with myocardial fibrosis and necrosis, five cases; (4) coronary sclerosis only with myocardial fibrosis, two cases; (5) no evidence about the condition of the coronaries, four cases.

Prognosis of Aortic Syphilis.—That the prognosis of aortic syphilis is not always grave is shown by the three cases reported by Maclachlan. One of the patients has been under observation for almost nine years, the other for about seven years. The third patient died about two and a half years after he first consulted Maclachlan. In his case a well recognized aortic regurgitation with cardiac symptoms was associated with the aneurysm.

Lipiodol in Neurosurgery.—Maclaire's experience with lipiodol has been limited to three cases, one of which gave undoubted evidence of the irritative power of this substance. The intraspinal injury was definitely increased for a period of five months, which was the duration of the lipiodol encystment in the subarachnoid space.

Acute Typhoid Cholecystitis.—Pomeroy and Shen observed a patient operated on for acute cholecystitis without calculi. *Bacillus typhosus* was obtained in pure culture from the gallbladder. There was a definite history of typhoid forty-one years before operation, with no symptoms suggestive of gallbladder trouble in the interim. The stools were persistently negative for *B. typhosus,* while the organism was present in the discharge from the cholecystostomy sinus.

Effect of Roentgenotherapy on Heart.—A series of patients irradiated over the chest were studied by means of electrocardiograms and by clinical and pathologic examination for the purpose of determining any changes in the myocardium that could be attributed to the effects of roentgenotherapy. A series of other patients receiving irradiation over parts other than the chest were also studied. There was no definite evidence to suggest that roentgenotherapy in the dosage used was sufficient to cause any temporary or permanent changes in the myocardium that could be recognized by the methods used in this study.

Left Shoulder Pain in Chronic Appendicitis.—Three cases are reported by Gray in which pain in the left shoulder was associated with chronic appendicitis, acting reflexly through the phrenic nerve, and disappearing following appendectomy. The method of production of the pain is discussed.

American Review of Tuberculosis, Baltimore

7: 273-386 (Dec.) 1925

*Tuberculosis in Filipinos. G. R. Callender and M. W. Hall, Washington, D. C.—p. 273.
Gold-Sodium-Thiosulphate, Called Sanocrysin by Møllgaard. A. J. Gelarie and F. R. Greenbaum, Philadelphia.—p. 314.
Effect of Sanocrysin on Tubercle Bacillus in Vitro. H. C. Sweany and M. M. Wasick, Chicago.—p. 316.
Effect of Sanocrysin on Normal and Tuberculous Dogs. K. L. McCluskey and L. Eichelberger, Chicago.—p. 329.
Diagnosis and Management of Large Pleural Effusions Complicating Pulmonary Tuberculosis. H. Hennell, New York.—p. 344.
*Transmutation of Tubercle Bacilli and Paratubercle Bacilli. A. Calmette, Paris.—p. 355.
Origin of Tubercle Bacillus. S. J. Maher, Long Branch, N. J.—p. 365.
Peculiar Behavior of Certain Tubercle Bacilli. W. M. Stockwell, Hartford, Conn.—p. 371.

Tuberculosis in Filipinos.—A study is presented by Callender and Hall based on the annual reports of the Philippine General Hospital and on the incidence rates for the anatomic types of tuberculosis made from these reports. The incidence tables show a preponderance of chronic tuberculosis in a well tuberculized community, while the considerable numbers of cases of abdominal and lymph node tuberculosis indicate overexposure of the population to tuberculous material. A higher rate for abdominal tuberculosis is shown for Cebu than for Manila. A study of the incidence of the anatomic types of tuberculous lesions in 10,000 necropsies on Filipinos is also reported. The rather high rate for abdominal and intestinal

tuberculosis indicates infection through the intestinal tract by tuberculous material from human sources, there being little opportunity for infection from animals. Filipinos have approximately two and a half times as much tuberculosis as Americans. The natives of the Philippines, with the possible exception of the uncivilized tribes, are highly tuberculized, and the high continuing mortality and morbidity are due to poor hygiene and inadequate sanitation. The trend of tuberculosis mortality in the Philippines is now apparently upward and, while some of this may be due to better diagnosis, the authors feel that faults of hygiene and sanitation must bear most of the blame for preventing the rates in this people from following the downward course of the rates of other civilized countries.

Transmutation of Tubercle Bacilli.—Calmette says that up to the present there has been no experimental fact which justifies the hypotheses that there exist in nature, or that it is possible to produce artificially, saprophytic varieties of Koch's bacillus which can be transformed into virulent tubercle bacilli. Nobody has yet succeeded in conferring on paratubercle bacilli, of whatever origin, tuberculous properties transmissible through series of cases. The only positive results reported in this connection show obvious errors due to superadded infections. Further, there has been no successful attempt to modify true tubercle bacilli by giving them the essential characters of paratubercle bacilli (cultivation at low temperature, rapid growth on glucose or glycerin mediums, absence of all tuberculogenic properties). The only result has been to show that it is possible to create a race of tubercle bacilli, by cultural devices, which will no longer produce tubercles in susceptible animals, but which still possess the property of secreting tuberculin and of serving as antigen. These bacilli remain toxic for tuberculous animals. They are not, therefore, paratubercle bacilli. The paratubercle bacilli cannot be used for producing immunity against active tuberculosis. It is incontestable that tubercle bacilli (bovine, human, avian) form a group of definitely specific micro-organisms. The paratubercle bacilli possess certain biochemical resemblances that link them to the tubercle bacilli, but the hypothesis that they have a common origin does not appear to have any foundation. Consequently, there is no reason for considering paratubercle bacilli, not definitely pathogenic, as offering any danger to man or to animals susceptible to tuberculosis. They appear to play no part in the spread of tuberculosis in the world at large.

Annals of Surgery, Philadelphia

62: 833-1102 (Dec.) 1925

*Cancer of Thyroid; Treatment. L. F. Craver, New York.—p. 833.
*Congenital Cysts and Fistulas of Neck. P. Klingenstein and R. Colp, New York.—p. 854.
*Compression of Spinal Cord by Tumor. W. J. Mixter, Boston.—p. 865.
Origin and Development of Blood Supply of Whole-Thickness Skin Grafts. J. S. Davis and H. F. Traut, Baltimore.—p. 871.
Roentgen Ray as Diagnostic Aid in Hemangioma. L. Dunn, Minneapolis.—p. 880.
Myositis Ossificans Circumscripta. A. Gruca, Lwow, Poland.—p. 883.
*Gastric Resection for Pyloric and Duodenal Ulcer. R. F. Carter, New York.—p. 920.
*Failure of Gastro-Enterostomy to Effect Decisive Reduction in Gastric Acidity. R. Lewisohn and R. G. Feldman, New York.—p. 925.
Infantile Pyloric Stenosis. W. F. Fowler, Rochester, Minn.—p. 940.
*Benign Tumors of Duodenum. A. M. Willis and M. Lasersohn, Richmond.—p. 952.
Pancreatic Lithiasis: Four Cases. H. R. Hartman, Rochester, Minn.—p. 956.
*Total and Polymorphonuclear Leukocyte Counts in Chronic Appendicitis. W. C. Menninger, Topeka, Kan., and H. G. Holder, San Diego, Calif.—p. 960.
*Technic for Removal of Hemorrhoids. L. A. Buie, Rochester, Minn.—p. 964.
Bilateral Duplication of Renal Pelves and Ureters. H. W. E. Walther, New Orleans.—p. 968.
Prehernial Lipoma. L. F. Watson, Chicago.—p. 971.
Value of Blood Transfusion in Surgery of Prostate. A. I. Dodson, Richmond, Va.—p. 974.

Results of Treatment of Thyroid Cancer.—A report is made by Craver on thirty-three cases of thyroid cancer in which operation was performed. Ten patients are now living, seven free from evidence of tumor for from two years and three months to seven years and eleven months. The other three living patients show definite improvement. The living patients were twelve years younger, on the average, when their treatment was begun, than those who died; and already they have lived three times as long after coming to the hospital than did those who died. On the basis of this study it would seem best to advise early complete removal of all nodular tumors of the thyroid. While this procedure does not guarantee that other similar tumors will not appear later in the remaining portions of the gland, it will discover many unsuspected carcinomas. If carcinoma is so discovered, prompt and thorough postoperative irradiation with roentgen ray or the radium pack should be used. If a clinical diagnosis of cancer of the thyroid can be made, operation should be avoided, and thorough irradiation, either by heavy roentgen-ray or external radium applications, or these combined with an efficient form of interstitial radium application, should be carried on.

Thyroglossal Cysts.—Forty-two cases of thyroglossal cysts and fistulas are reviewed by Klingenstein and Colp: thyroglossal cysts, thirteen; thyroglossal fistulas, twenty; a combination of cysts and fistula, nine. Sixteen cases have been classified as branchiogenic cysts of fistulas.

Compression of Spinal Cord by Tumor.—Ninety-one cases of spinal cord tumor are reviewed by Mixter. There were nineteen cases of intramedullary tumor, and the end-results were almost uniformly bad. There were thirty-five cases in which the tumor arose from structures outside the cord but inside the bones of the vertebral column. Of these, twenty-six were cured or definitely and permanently improved. There were twenty-eight tumors of the vertebral column, metastatic or primary. Five cases of intraspinal tuberculous abscess were classed as tumor suspects. There were sixteen in which no lesion was found at operation. Ninety-eight laminectomies were performed, with five operative deaths. A further analysis of the spinal tumors shows that in this class were practically all the successful cases. Of the thirty-five, ten were meningioma and eight neurofibroma; the rest were scattering. Twelve were symptomless; fourteen were definitely improved, many patients working. Only three have died of tumor, two of these having malignant leiomyomas metastatic from the uterus. In cases in this series in which examination of the cerebrospinal fluid was made, lumbar puncture was conclusive in about 80 per cent and doubtful in 20 per cent. In the 20 per cent, combined puncture was necessary to eliminate this element of doubt. In cases in which block is positive, Mixter always injects lipiodol above the tumor. If a positive localization can be made without the help of lipiodol, he prefers not to use it, as it remains indefinitely in the cerebrospinal space. No permanent ill effects have been reported from its use, though it is temporarily irritating, as shown by rise in temperature, headache, and increased cell count in the cerebrospinal fluid.

Resection of Stomach for Ulcer.—Carter resects the lesser sac of the stomach, including the pylorus, does a gastrojejunostomy by suturing the entire width of the stomach into the longitudinal opening in the distal half of the jejunal loop, and closes the anterior wall of the lesser sac by attachment of gastrohepatic omentum to the lesser curvature of the stomach and convex surface of the jejunum and gastrocolic omentum to the proximal and distal loop of the jejunum and greater curvature of the stomach, thereby fixing the jejunum in this position and maintaining the normal anatomic position of the stomach. Suture of the margin of the opening made in the colonic mesentery about the proximal and distal loop of the passing jejunum fixes the jejunum and closes the opening of the posterior wall of the lesser sac.

Cause of Failure of Gastro-Enterostomy.—Complete anacidity (absence of free hydrochloric acid) was observed by Lewisohn and Feldman in 88 per cent of cases of gastric ulcer treated by partial or subtotal gastrectomy between 1915 and 1920. During the same period, complete anacidity was observed in less than 3 per cent of the cases treated by gastro-enterostomy with or without excision of the ulcer. Pylorectomy does not effect an anacidity, and is followed by gastrojejunal ulcers in a considerable number of cases. Complete anacidity was established in eight cases requiring partial or subtotal gastrectomy for gastrojejunal or recurrent

duodenal ulcer. These patients had suffered for years following the primary gastro-enterostomy. They have been perfectly well since the radical operation. In order to prevent the occurrence of gastrojejunal ulcers, the primary operation ought to establish a permanent anacidity. Partial or subtotal gastrectomy is the only method of operation that establishes permanent anacidity in a large percentage of the cases. Partial or subtotal gastrectomy should be the method of choice in the surgical treatment of gastric and duodenal ulcers.

Benign Tumors of Duodenum.—Willis and Lasersohn report two cases of adenoma of the duodenum occurring in adults. The chief complaint was pain in the upper abdomen. In one case the tumor was 1 inch distal to the pyloric sphincter. In the second case the tumor arose one-fourth inch above the orifice of the common duct, in which was lodged a small stone. Both patients recovered from the operation, although they were past 60.

Leukocyte Count in Chronic Appendicitis.—The leukocyte count in ninety-three cases of so-called (and so classified) chronic appendicitis was studied by Menninger and Holder. In acutely inflamed cases, there is a plus resistance index figure, which increases with the severity of the process. The data for chronic cases shows a minus resistance index figure, which, the authors' feel, further supports the principle that the total leukocyte count represents the body reaction and the polymorphonuclear count expresses the severity of the pathologic process. The ratio between these, as expressed by the resistance index, is a minus figure in cases of chronic pathologic changes associated with chronic symptoms clinically, but becomes a plus figure in cases of acute pathologic changes, associated with acute symptoms clinically. The figure continues to rise as the severity of the process increases.

Removal of Hemorrhoids.—Buie describes a suture method for removing hemorrhoids which is said to eliminate certain undesirable features often associated with this operation.

Colorado Medicine, Denver

23: 1-40 (Jan.) 1926

Clinical Manifestations of Tumors of Spinal Cord. H. W. Woltman, Rochester, Minn.—p. 5.
Function of Kidney. A. N. Richards, Philadelphia.—p. 11.
Value of Laboratory Tests in Diagnosis of Kidney Efficiency. F. M. Heller, Pueblo.—p. 14.
Subphrenic Abscess. W. Senger, Pueblo.—p. 28.

Indiana State Medical Association Journal, Ft. Wayne

18: 445-486 (Dec.) 1925

Nephritis, Hypertension and Arteriosclerosis. F. M. Allen, Morristown, N. J.—p. 445.
*Compression of Arteries with Curved Rubber-Covered Forceps in Treatment of Aneurysm. J. R. Eastman, Indianapolis.—p. 451.
Gallbladder Disease. H. O. Bruggman, Fort Wayne.—p. 453.
Peptic Ulcer. M. N. Hadley, Indianapolis.—p. 459.

Gradual Compression of Arterial Aneurysm.—Eastman reports a case of traumatic aneurysm of the femoral artery in which complete ligation or endo-aneurysmorrhaphy seemed fraught with too much danger and was not considered advisable. It was believed that intermittent partial compression of the femoral artery, with the view of forcing the establishment of sufficient collateral circulation to nourish the leg distal to the aneurysm, offered the best solution of the problem, as gangrene of the toe tips seemed to give warning against a more radical procedure. A curved clamp was made with a long ratchet bar, so that compression could be graduated accurately. The jaws of the clamp were covered with rubber tubing. Through an incision above the tumor on the inner side of the thigh, one jaw of the clamp was passed under the femoral artery proximal to the aneurysm, but the clamp was not closed even as far as the first notch of the ratchet bar for the reason that merely placing one jaw of the clamp under the artery narrowed the lumen slightly. After three days the clamp was closed to the first ratchet, following which the tumor decreased somewhat in size, but about three hours subsequent to institution of this slight compression the foot became cold; therefore, the clamp was released at the ratchet but not removed from the artery. Three days later this performance was repeated. However, after the clamp had been caught at the first ratchet, the foot did not turn cold. A few days later the clamp was tightened to the second ratchet, and after two days again released. During the next two weeks the clamp was tightened gradually to the last notch, and nothing of interest happened in the foot. The clamp was left in place for ten days, during which the condition of the toes improved, suggesting that an adequate collateral circulation was present. The tumor became hard and lost its pulsation and bruit; therefore the incision was reopened, the clamp removed and the two no. 2 chromic catgut sutures were applied above the aneurysm, after which the sac was opened and a large partially organized clot removed with gauze. The foot is now normal and there is no loss of function. The tumor practically has disappeared.

Journal of Comparative Psychology, Baltimore

5: 417-498 (Dec.) 1925

Experiments on Vision in Monkeys. I. Color Sense of Pig-Tailed Macaque (Nemestrinus Nemestrinus L.). J. A. Bierens de Haan, Amsterdam, Holland.—p. 417.
Self-Recording Maze. E. C. Tolman and L. A. Jeffress, Berkeley, Calif.—p. 455.
Reactions of Ant, Cremastogaster Lineolata (Say), to Heat. D. F. Miller and M. Gans, Columbus, Ohio.—p. 465.
Relation Between Maze Learning and Spontaneous Activity in Sheep. H. S. Liddell, Ithaca, N. Y.—p. 475.
Adaptation of Nystagmus to Repeated Caloric Stimulation in Rabbits. K. Dunlap, Baltimore.—p. 485.

Journal of Urology, Baltimore

14: 571-684 (Dec.) 1925

*Pyelographic Mediums. R. C. Graves, Boston.—p. 571.
Errors of Technic and Interpretation in Ureteropyelography. W. A. Frontz, Baltimore.—p. 579.
Urographic Studies of Ureters. W. E. Lower and G. W. Belcher, Cleveland.—p. 593.
Pyelographic Errors in Diagnosis of Renal Neoplasms. D. N. Eisendrath and I. S. Koll, Chicago.—p. 615.
Errors in Interpretation of Urographic Findings. W. F. Braasch, Rochester, Minn.—p. 631.
Leukoplakia of Bladder: Case. O. J. Wilhelmi, St. Louis.—p. 653.
Treatment of Gonorrheal Arthritis by Iodine Solution. T. C. Stellwagen, Philadelphia.—p. 661.
New Ureteral Dilators and Catheters. V. C. Pedersen, New York.—p. 671.

Pyelographic Mediums.—In Graves' opinion, 12 per cent sodium iodide is the pyelographic medium of choice. It lacks but one important quality, that of germicidal activity. Mercuric iodide, an antiseptic of high potency, can be combined in great dilution with 12 per cent sodium iodide without destroying its bactericidal value. Furthermore, the solution as a pyelographic medium remains essentially unchanged so far as its physical characteristics are concerned. A dilution of 1:3,000 mercuric iodide in 12 per cent sodium iodide (1 Gm. of mercuric iodide in 3,000 Gm. of 12 per cent sodium iodide) has a phenol coefficient of 0.033. In other words, it is comparable on this basis to from 3 to 4 per cent of phenol. It is not irritating to mucous surfaces, and after prolonged routine use Graves has not observed any ill effects or discomfort following its injection into either bladder or kidney pelvis, even in the presence of active inflammation.

Ohio State Medical Journal, Columbus

22: 17-96 (Jan. 1) 1926

Surgical Problems in Jaundice. S. Oliver, Cincinnati.—p. 21.
Subphrenic Abscess. R. Dexter, Cleveland.—p. 24.
*Biochemical Studies in Mental Disease. H. D. McIntyre, A. P. McIntyre and R. J. Norris, Cincinnati.—p. 28.
Relationship of Laryngologist to Public Speaker and Singer. S. H. Large, Cleveland.—p. 35.
Hemorrhages of Early Months of Pregnancy. W. D. Inglis, Columbus.—p. 39.
Modern Phase of Health Administration. A. W. Freeman, Baltimore.—p. 41.

Biochemical Studies in Mental Disease.—Evidence is presented by the McIntyres and Norris that manic-depressive, schizoid and confusional reactions may in their early stages be accompanied by signs of toxemia; viz., leukocytosis, acidosis, fever and nitrogen retention. Treatment directed toward the elimination of the toxemia is frequently effective in bringing about a mental recovery. The toxins, acid or otherwise, so affect the hydrated colloids of the nerve cells as to bring

about a cracking of the emulsion of which the nerve cell is composed. Treatment, to be effective, must take place before this irreversible cracking point is reached.

Public Health Journal, Toronto

16: 551-600 (Dec.) 1925

Hieronymus Fracastorius: Three Books on Contagion, Contagious Diseases and Their Treatment. W. R. Riddell.—p. 551.
Various Pathologic Conditions Which Affect Progress of Cardiac Cases. G. Smith.—p. 563.
Early Autolytic and Bacterial Transformation of Fish Muscle Proteins. G. B. Reed.—p. 568.
Standardizing the Provincial Death Rates. A. C. Jost.—p. 578.

Rhode Island Medical Journal, Providence

9: 1-16 (Jan.) 1926

Management of Heart in Hypertensive Disease. J. P. O'Hare, Boston. —p. 1.
Heliotherapy. L. L. Albert, Central Falls.—p. 3.

Surgery, Gynecology and Obstetrics, Chicago

42: 1-160 (Jan.) 1926

*Bell-Beuttner Operation with Ovarian Conservation or Grafting. W. B. Bell, Liverpool, Eng.—p. 1.
*Chronic Pelvic Infections. A. H. Curtis, Chicago.—p. 6.
Hepatic Function in Health and Disease. C. H. Mayo, Rochester, Minn. —p. 9.
*Carcinoma of Male Breast. E. S. Judd and H. D. Morse, Rochester, Minn.—p. 15.
Tumors of Urachus: Seven Cases. F. W. Rankin, Lexington, Ky., and B. Parker, Rochester, Minn.—p. 19.
*Section of Left Vagus for Relief of Asthma. R. A. Kern, Philadelphia. —p. 28.
*Ectopic Ureteral Openings. E. F. Kilbane, New York.—p. 32.
*Extra-Uterine Pregnancy at Full Term. J. M. H. Rowland, Baltimore. —p. 50.
Experimental Nephrotomies. W. J. Carson, Baltimore.—p. 53.
*Spontaneous Rupture of Esophagus. T. H. Williams and W. Boyd, Winnipeg, Can.—p. 57.
*Bacteriology of Thyroid in Goiter. A. Cantero, Rochester, Minn.—p. 61.
Common Misconceptions in Radiotherapy. A. U. Desjardins, Rochester, Minn.—p. 64.
*Experimental Study of Rupture of Uterus. J. E. Lackner, Chicago. —p. 69.
Teaching and Practice of Obstetrics. W. G. Lee, Chicago.—p. 74.
Roentgenographic Diagnosis in Gynecology: Pneumoperitoneum. I. F. Stein, Chicago.—p. 83.
Dermatolysis: Case. H. Goodman and E. F. Traub, New York.—p. 88.
Question of Gastro-Enterostomy in Duodenal Ulcers. G. Woolsey, New York.—p. 90.
Fracture of Both Bones of Forearm: Two Hundred Cases. C. H. Bagley, Baltimore.—p. 95.
Ruptured Cornual Pregnancy: Case. J. L. Grove, Newton, Kan.—p. 102.
Surgical Treatment of Gastric and Duodenal Ulcer. J. Douglass, New York.—p. 106.
*Resection of Long Bones for Chronic Osteomyelitis. G. I. Bauman and H. E. Campbell, Cleveland.—p. 114.
Congenital Cystic Tumor of Neurenteric Canal. G. H. Hansmann, Iowa City.—p. 124.
Problem of Bringing Forward Retracted Upper Lip and Nose. V. P. Blair, St. Louis.—p. 128.
Fractures of Os Calcis: Fifteen Cases. L. I. Condit, Detroit.—p. 133.
*New Blood Transfusion Apparatus. D. McLelland, Vancouver, B. C. —p. 135.

Results of Bell-Beuttner Operation.—Bell reports on 108 cases in which the Bell-Beuttner operation was performed together with ovarian grafting. The mortality was 2.6 per cent of sixty-six cases available for determination of end-results; menstruation occurred in forty-five; the menopause was averted in fifty-one. Of nine cases analyzed in which the ovary remained in situ, menstruation occurred in eight cases and the menopause in one case.

Chronic Pelvic Infections.—Curtis points out the fallacy of overemphasis of cervical infections as foci for arthritis and other serious systemic disturbances. Leukorrhea may be cured by removal or destruction of the diseased cervix; also, a considerable number of patients may be thus relieved of sterility. But systemic infection from chronic cervicitis appears to be unusual. From bacteriologic study, combined with five years' conservative clinical experience, Curtis concludes that operation on fallopian tubes for eradication of gonorrheal infection is not often indicated. The infection disappears spontaneously if the patient is isolated from the source of her disease. Expectant care eventuated in clinical recovery of the great majority of patients and is beneficial to those who must ultimately obtain operative relief. Surgery should usually be long delayed and reserved chiefly for sequelae, such as adhesions, menstrual disturbances and sterility.

Carcinoma of Male Breast.—Judd and Morse analyze seventeen cases of carcinoma of the male breast. In four there was a family history of carcinoma. The duration of the disease varied from nine months to eighteen years. A radical operation was performed in each case. One death occurred, making an operative mortality of 5.8 per cent. In fourteen of the seventeen patients the primary operation was performed; in three, the radical procedure was for recurrence fifteen, eighteen and twenty-four months, respectively, after simple amputation done elsewhere. One patient died after operation from erysipelas. Seven died from metastasic lesions demonstrated in necropsies. The greatest postoperative duration of life was six years and the least seven months, the average being 19.5 months. One patient died following nephrectomy for hypernephroma four years after the radical amputation of the breast for carcinoma, and at necropsy no evidence of metastasis from the original tumor was found. Four patients are alive and show no evidence of any recurrence six months, sixteen months, three years and six years, respectively, after operation. Eleven patients received roentgen-ray treatments postoperatively, but this treatment does not seem to have arrested the progress of the disease to any appreciable extent in this series of cases. Judd and Morse urge that tumors in the male breast should receive immediate radical operative treatment. Good results are obtainable only by radical operation before glandular or other metastatic lesions occur.

Vagus Section in Asthma.—The history of a patient is reported by Kern in whom as a last resort the left vagus was cut for the relief of asthma. The operation was followed by only slight improvement. No harmful effects on heart action were observed. Bronchoscopic examination showed diminished but not lost bronchial motility on the affected side.

Ectopic Ureteral Openings.—Kilbane reviews ninety-eight cases recorded in the literature and reports two additional cases. In both cases the kidney had two pelves and the supernumerary ureter opened near the external urinary meatus. Both patients were women.

Extra-Uterine Pregnancy at Full Term.—The fetus in Rowland's case was lying behind the uterus with the head in the pelvis. The placenta was quadrilateral and was attached chiefly to the posterior surface of the broad ligaments and the posterior surface of the uterus. There were some small extensions of the placenta to the right side attached to the mesentery and folds of the small intestine by light adhesions. The child was delivered alive, a well developed, normal child, weighing 8½ pounds (3.8 Kg.). A hysterectomy was also done. The patient made a good recovery. The baby is living and well, nearly 5 years of age.

Spontaneous Rupture of Esophagus.—In the case cited by Williams and Boyd, death occurred a little less than twenty hours after vomiting ushered in the attack. The patient was an alcoholic. Careful microscopic examination of the specimen and experimental work lead the authors to the conclusion that this spontaneous rupture is preceded by some inflammatory process which weakens the esophageal wall.

Relation of Streptococcus to Goiter.—From the results of his bacteriologic study and experimentation, it seems to Cantero that localization of certain organisms, especially those belonging to the streptococcal group, in the thyroid gland, may be an important factor in the pathogenesis of goiter.

Experimental Rupture of Uterus.—Lackner endeavored to determine experimentally if the type of incision in the uterus and the type of suture material played an etiologic rôle in rupture of the uterus. Goats were used in these experiments. The results obtained lead to a negative answer for both problems studied.

Treatment of Chronic Osteomyelitis.—Bauman and Campbell are convinced that in properly selected cases of chronic osteomyelitis, subperiosteal resection of the diaphysis of long bones, coupled with subsequent bone graft, if necessary, offers a better chance of cure and restoration of normal function than the less radical procedures.

New Blood Transfusion Apparatus.—McLellan describes an apparatus for the direct transfusion of blood, which permits of the introduction of citrate and saline solution into the blood stream as it passes through the apparatus.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Australian Journal of Experimental Biology and Medical Science, Adelaide

2: 167-188 (Dec. 16) 1925

*Mitochondria of Opalina: Behavior During Life Cycle. E. S. Horning.—p. 167.
*Influence of Tethelin on Growth and Longevity. T. B. Robertson and L. A. Ray.—p. 173.

Nature of Mitochondria.—The observations made by Horning are said to afford strong evidence for the view that mitochondria are persistent, self-producing bodies and not metabolic products of the cytoplasm. Evidence is given that synthesis of vegetative granules (storage products) may take place at the surface of the mitochondria.

Effect of Tethelin on Growth.—Experiments made by Robertson and Ray gave evidence that preadolescent hypodermic administration of tethelin to mice, in dosage of 4 mg. daily, causes initial retardation, followed by compensatory acceleration of growth, which eventually leads to a considerable overgrowth of the treated animals and which attains its maximum at about 500 days of age. The treated animals then exceed the normals both in size and in weight. The average life duration of the treated animals exceeded that of the controls by ninety days.

British Journal of Medical Psychology, London

5: 161-256 (Dec.) 1925

Conception of Sexuality. I. J. A. Hadfield.—p. 161.
Id. II. J. Glover.—p. 175.
Id. III. A. F. Shand.—p. 189.
Id. IV. Glover's Reply.—p. 196.
Id. V. Hadfield's Reply.—p. 208.
*Suggestion Toward Theory of Manic-Depressive Insanity. W. McDougall.—p. 212.

Theory of Manic-Depressive Insanity.—The suggestion made by McDougall toward a theory of manic-depressive insanity is that the disorder results from the upsetting or disturbance of the normal balance and cooperation of these two impulses within the sentiment of self-regard.

British Medical Journal, London

2: 1207-1252 (Dec. 26) 1925

Backache in Women. H. R. Andrews.—p. 1207.
*Thyroid and Manganese Treatment: Influence on Abnormal Blood Pressures. H. W. Nott.—p. 1209.
*Catarrho-Pyogenic and Tuberculous Infections of Lower Respiratory Tract. H. B. Shaw.—p. 1212.
*Effects of Pancreas Preparations by Mouth on Carbohydrate Metabolism. P. J. Cammidge.—p. 1216.
*Ultraviolet Rays in Dermatologic Practice. W. F. Castle.—p. 1218.
Treatment of Uterine Fibroids by Myomectomy. P. L. Giuseppi.—p. 1220.
*Endoscopy of Uterus. H. F. Seymour.—p. 1220.
*Treatment of Paroxysmal Stage of Whooping Cough. A. B. Williamson.—p. 1222.
Rectal Anesthesia. W. I. de C. Wheeler.—p. 1223.
Pregnancy Complicated by Necrotic Fibroids. M. Rawlins.—p. 1223.
Pulmonary Tuberculosis Commencing at Seventy-Seven. A. P. Ford.—p. 1223.
Temporary Blindness After Concussion. J. Fanning.—p. 1224.
Tabes Dorsalis in Surgical Practice. R. W. Jones.—p. 1224.
Tuberculous Disease of Tonsil. J. L. C. Doyle.—p. 1224.
Pale Babies and Deep Perambulators. Doreen and J. Nixon.—p. 1224.

Effect of Potassium Permanganate on Blood Pressure.—Nott reports his observations on the effect on blood pressure of rectal injection of 1 pint (475 cc.) of a solution of 1 grain (0.065 Gm.) of pure potassium permanganate freshly dissolved in 1½ pints (700 cc.) of warm water daily, from ten to fifteen minutes after defecation, together with 1 grain of thyroid extract, twice daily, in cases of hyperthyroidism. The greater number of cases have responded very rapidly, high blood pressures having been reduced to much safer levels, and low blood pressures raised to more normal levels, in from a week to fourteen days. This medication may also be given by mouth, although it is said to be not as effective as rectal injection. The best results have come from a freshly made dose containing one-eighth grain (8 mg.) of potassium permanganate, combined with from one-half to 1 grain (0.03 to 0.065 Gm.) of thyroid extract.

Catarrhopyogenic Infections and Tuberculosis of Lung.—Shaw points out that catarrhopyogenic organisms can produce at the bedside and in the postmortem room certain conditions that are identical with those wrongly alleged to be produced by the tubercle bacillus. The tubercle bacillus is not always able to be demonstrated in these lesions. He holds that it is wrong to assume that because a patient presents tubercle bacilli in the sputum his lungs are infected by the tubercle bacillus alone—they may be infected by other organisms as well. Catarrhopyogenic organisms may begin to exert their influences on the lung before or as early as the tubercle bacillus. This has led to confusion in nomenclature, a confusion which cannot be ended unless it is recognized that the term "pulmonary tuberculosis" is too inclusive. Shaw thinks it would be better to use this term to denote the condition of diffuse miliary tuberculosis of the lungs and confluent tuberculous pneumonia, and revert to the use of the term "consumption" or "phthisis pulmonum"; but the latter term should be elaborated and the condition of the lung spoken of as "simple consumption" or "simple phthisis pulmonum" if tubercle bacilli cannot be recovered from the sputum, and "tuberculoconsumption" or "tuberculophthisis pulmonum" when it is desired to indicate that cases of simple consumption have become complicated by the presence of tubercle bacilli in the sputum.

Effect of Pancreas Preparations by Mouth on Carbohydrate Metabolism.—It is probable, says Cammidge, that fresh pancreas and active pancreas preparations given by mouth will improve carbohydrate metabolism in some forms of pancreatic diabetes as well as in the nonpancreatic varieties, under suitable conditions; but examinations of the feces from a very large number of diabetic patients have shown that an excess of the external secretion of the pancreas is much more commonly encountered than a deficiency, more especially in young persons; and in the earlier stages of the disease, there still remains a very considerable proportion in which no benefit can be expected, at least as the treatment is at present carried out.

Ultraviolet Rays in Dermatologic Practice.—The mercury vapor or the carbon arc lamp has been used successfully by Castle in the treatment of cases of impetigo, sycosis, boils and furunculosis, carbuncles, septic wounds, multiple subcutaneous abscesses of infants, alopecia areata, psoriasis, seborrhea, acne vulgaris, lupus, the tuberculids and chilblains.

Endoscopy of Uterus.—Seymour has devised a hysteroscope made on the bronchoscope principle. The instrument and the method of using it are described.

Treatment of Paroxysmal Stage of Whooping Cough.—Twenty cases of whooping cough in the paroxysmal stage were treated by Williamson with tincture of drosera rotundifolia and compared with controls treated with tincture of belladonna or without any antispasmodic. There was no evidence whatever to show that tincture of drosera is a specific in the treatment of these cases. On the contrary, its therapeutic action appears to be negligible. In doses exceeding 3 minims (0.2 cc.), three times daily, of the 10 per cent tincture it is an intestinal irritant and is liable to set up an enteritis, which, in weakly bronchopneumonic cases, may prove fatal.

Glasgow Medical Journal

22: 297-348 (Dec.) 1925

*Significance of Guanidines in Animal Body. N. Paton.—p. 297.
*Plus-Potentially Sick of Race. W. W. Graves.—p. 315.
Wry Neck or Torticollis. W. Rankin.—p. 323.
Procedure to Fill in Medium-Sized Gap in Nostril. A. MacLennan.—p. 326.

Significance of Guanidines.—It seems to Paton that the free guanidines have an action in determining muscle tone, possibly by their influences on the endings of the sympathetic nerves; that they are produced in the liver from the cholin of lecithin, and that their formation may be controlled by

the condition of the muscles, as the formation of sugar is controlled; that their action on the muscles is governed by the internal secretion of the parathyroids, which regulates their change into the inert creatin, and that probably the outflow of the secretion from the parathyroids is called forth by the condition of the muscles.

Scapular Types and Heredity.—Graves sees in scapular types easily accessible inherited features, readily recognizable by inspection and palpation; scapular classification with the age incidence principle represents new and dependable approaches to the problems of human heredity, morbidity, longevity and adaptability.

Indian Medical Record, Calcutta

45: 369-400 (Dec.) 1925

Comparative Result of Wassermann and Sachs-Georgi Reaction for Syphilis. R. Sahib and S. C. Dutt.—p. 369.
Control of Venereal Diseases in Calcutta. S. Sinha.—p. 370.
Immunity. A. Roy.—p. 372.
Transmigration Theory Refuted Medically. M. S. N. Ahmadi.—p. 376.

Journal of Oriental Medicine, Dairen, So. Manchuria

4: 1-14 (Nov.) 1925

Amebocytes of Lumbricoids in Active and Quiescent State. J. Murakami.—p. 1.
Wieland's Dehydration Theory. K. Tanaka.—p. 4.
Pathologic Anatomy of Recurrent Fever, Especially Orchitis. M. Imai.—p. 5.
Investigations of Chinese Drug, MA Huang Ken (Root of Ephedra vulgaris). M. Fuji.—p. 6.
Treatment of Narcotic Poisoning. F. Shiratori.—p. 7.
Whooping Cough Pneumonia. Three Pathologic Changes in Lung Following Intravenous Injection of Endotoxin of Bacillus of Bordet-Gengou. Roentgenogram of Human Lung Seat of Whooping Cough Pneumonia. T. Hayakawa.—p. 8.
Animal Parasites of Vicinity of Mukden. S. Yano, T. Shimizu, S. Shirai and T. Kaneko.—p. 9.
Influence of Anti-Thymo-Immune Serum on Blood Findings. T. Fushiki.—p. 10.
Increasing Cell Respiration by Means of Salts of Metals. K. Tanaka.—p. 11.

Kenya Medical Journal, Nairobi, East Africa

2: 245-274 (Dec.) 1925

*Analysis of Epidemic of Bacillary Dysentery: New Therapy. A. J. Boase.—p. 245.
Trypanosomiasis Census of Populations on Miriu River, Central and South Kavirondo Districts, Nyanza Province. J. O. Beven.—p. 251.
Provision of Hospital Accommodation Particularly for Infectious Diseases. F. J. C. Johnstone.—p. 254.
Therapeutic Properties of Stovarsol. C. Levaditi.—p. 264.
Death Following Administration of Carbon Tetrachloride. C. V. Braimbridge.—p. 267.
Epidemic of Amebic Hepatitis. N. B. Peacock.—p. 269.

Use of Castor Oil in Treatment of Bacillary Dysentery.—Boase sets forth the greater value of castor oil, administered in repeated small doses, over magnesium sulphate in the treatment of bacillary dysentery. In the epidemic reviewed by Boase all dysenteric patients were allowed full diet consisting of cooked bananas or sweet potatoes, tea, soup, with meat when available, sugar cane, and milk when the supply would meet the demand. No ill effects were noticed from this innovation.

Lancet, London

2: 1317-1368 (Dec. 26) 1925

*Efficiency of Heart: Measurement. Y. Henderson.—p. 1317.
Clinical Study of Dick Test. A. Joe.—p. 1321.
*Dick Test at Fever Hospital. F. A. E. Silcock.—p. 1324.
Problems Connected with Dick Test. R. A. O'Brien.—p. 1327.
*Hepatic Aspect of Epidemic Encephalitis. E. O'Flynn and M. Critchley.—p. 1329.
Avoidance of Pain After Tonsillectomy. R. S. Stevenson.—p. 1332.

Measurement of Heart Efficiency.—The activity of the heart and the volume of the blood stream are correlated by Henderson quantitatively with the size, vigor and gaseous exchange of men and animals during rest and muscular work. The principles underlying this correlation are formulated. The volume of the blood stream through the lungs is determined from the rate of absorption of ethyl iodide vapor. This method is said to afford an efficient and clinically practicable means of measuring the circulation, not only in normal persons, and in those of athletic and of sedentary habit, but also in patients with moderate cardiac impairment.

Dick Test in Scarlet Fever.—Of forty-eight cases of scarlet fever tested by Silcock from the first to the fifth day of the disease, 68.8 per cent gave a positive reaction. The number of such reactions gradually diminished with the increasing duration of the disease. The majority of cases (88.4 per cent) gave a negative reaction on and after the tenth day.

Hepatic Aspect of Epidemic Encephalitis.—O'Flynn and Critchley have been unable to find any clinical, histologic or biochemical evidence to suggest an hepatic involvement after epidemic encephalitis. The amount of sugar in the resting blood, however, tends to lie at a slightly higher level than normal. It is suggested that this hyperglycemia is the result of sympathetic dysfunction.

Medical Journal of Australia, Sydney

2: 691-714 (Dec. 19) 1925

Association of Medical Profession with State in Policy of Preventive Medicine. S. S. Argyle.—p. 691.
*Dysentery in Mental Hospitals: Types of Organisms Involved. E. T. Hilliard.—p. 695.
Administration of Ether in Operations on Lung. M. Lidwill.—p. 698.
*Tests with Tetrachlorethylene: New Anthelmintic. S. M. Lambert.—p. 699.

2: 715-736 (Dec. 26) 1925

Gonorrhea in Natives of New Guinea. W. L. Calov and H. Weir.—p. 720.
Acute Miliary Tuberculosis: Case. A. D. Morgan.—p. 724.

Dysentery in Mental Disease Hospitals.—The serums of thirty dysentery convalescents in a mental hospital were examined bacteriologically by Hilliard. The Flexner bacillus was found in ten patients, the Flexner Y bacillus in fourteen patients and the Shiga bacillus in six patients. A high degree of correlation existed between the serum reactions and bowel culture findings and the clinical symptoms of the disease.

Tetrachlorethylene as Anthelmintic.—Lambert's experience with this new anthelmintic failed to show any apparent reason for changing from the use of carbon tetrachloride to tetrachlorethylene. There is no greater drug efficiency, no fewer symptoms and no advantage in taste or odor.

Sei-i-Kwai Medical Journal, Tokyo, Japan

49: 1-6 (Dec.) 1925

Effect of Intravenous Injection of Kaolin. Y. Yasaki.—p. 1.
Relations Between Antigen and Antibody in Precipitin Reaction. M. Nishio.—p. 5.

South African Medical Record, Cape Town

23: 521-544 (Dec. 12) 1925

Experimental Cancer Research During Century: Its Clinical Application. H. P. Bayon.—p. 522.
Otologic Aspect of Diagnosis of Intracranial Tumors. F. F. Petersen.—p. 536.

23: 545-568 (Dec. 26) 1925

Diagnosis of Intracranial Tumors. J. D. M. Claassens.—p. 546.
Miners' Phthisis. E. H. Kettle.—p. 553.
Heliotherapy. S. F. Silberbauer.—p. 557.
*Case of Full Term Extra-Uterine Fetus. L. Hertzenberg.—p. 560.

Full Term Extra-Uterine Pregnancy.—Hertzenberg records a case of ruptured extra-uterine pregnancy, in which the ovum survived and continued to live in the abdominal cavity up to full term, when spurious labor set in, with death of the fetus. The woman was operated on and made an excellent recovery. The placenta was attached to the right broad ligament and was adherent to all surrounding structures.

Tubercle, London

7: 161-208 (Jan.) 1926

*Chronic Localized Tuberculosis: Evidence of Phenomenon of Koch. W. T. Munro and J. W. Winchester.—p. 161.

Effect of Diaplyte Vaccine in Chronic Localized Tuberculosis.—Munro and Winchester conclude that Dreyer's diaplyte vaccine, which can give no local reaction, and therefore produces no Pirquet reaction, and thus no phenomenon of Koch, cannot have any influence on chronic localized tuberculosis. In a series of cases at Glenlomond Sanatorium, it has been shown to be without effect either on the physical signs of disease or on the degree of skin sensitiveness to tuberculin.

Annales des Maladies Vénériennes, Paris

20: 897-960 (Dec.) 1925

*The p_H of the Cerebrospinal Fluid in Syphilis. M. M. Israelson and A. S. Krizman.—p. 897.
Extragenital Location of Chancres. P. Noel.—p. 911.
Masked Congenital Syphilis. J. Bobrie.—p. 917.

Hydrogen Ion Concentration in Cerebrospinal Fluid of Syphilitics.—Israelson and Krizman's research was made on the cerebrospinal fluid of 136 syphilitic patients; of fifteen with nonsyphilitic diseases, and of five healthy subjects. With a p_H of 7.7, the serodiagnosis of syphilis was positive in 9.7 per cent; with p_H of 7.6, in 55 per cent; with p_H of 7.5, in 90 per cent; with p_H of 7.4 in 100 per cent. In five cases of general paresis the p_H of the cerebrospinal fluid was 7.4.

Bulletin de l'Académie de Médecine, Paris

94: 1283-1360 (Dec. 29) 1925

Epidemics in France in 1923. H. Vallée.—p. 1288.
*Origin of the Adams-Stokes Syndrome. E. Géraudel.—p. 1297.
Diagnosis of Arthritis of the Hip Joint. F. Calot.—p. 1302.
*Prognosis of Gastric Cancer. V. Pauchet and Hirchberg.—p. 1304.
Survey of the Work of the Académie in 1925. G. Barrier.—p. 1309.

Pathogenesis of Adams-Stokes Syndrome.—Géraudel is convinced that the bundle of His is not responsible for the Adams-Stokes syndrome. This seems to be confirmed by numerous electrocardiograms. He reports a typical case of the paroxysmal form in a man, aged 56. At necropsy, the bundle of His as well as the whole impulse-conducting apparatus appeared absolutely intact. There was pronounced stenosis of the artery irrigating this apparatus. The hampered circulation in the artery must have impaired the functioning of the whole conducting apparatus, thus retarding the rhythm of the ventricle. No changes were found in the artery of the auricular node. This explains why the rhythm of the auricle had remained normal, with a disturbed ventricular rhythm. Death was apparently due to a prolonged spasm shutting off the blood from the conducting apparatus, and consecutive arrest of contraction of the ventricle. If the impaired circulation in the artery of the conducting apparatus is caused by a permanent lesion, no treatment will be of avail. The disturbance of the rhythm is transient if the stenosis is due merely to vasomotor changes, and it may be possible to influence these.

Prognosis of Operations for Gastric Cancer.—Of 100 operative cases of cancer, sixty were in men. Of thirty-nine inoperable cases, thirty-four were in men and only five in women. In twenty-one cancer cases with hydrochloric acid still present in the gastric juice, death after operation occurred in two, recurrences within the first two years in two. Of fifty cases of cancer with absence of hydrochloric acid, death after operation occurred in twenty-two and early recurrences in six. The prognosis both at the time and later is thus graver in the anachlorhydria cases. Pauchet and Hirchberg add that in these cases an operation is more likely to be successful in the proliferating form than in the infiltrative.

Bulletin de l'Acad. Royale de Médecine, Brussels

5: 275-318, 1925

*Outcome After Early Mobilization Following Wounds of Joints. C. Willems.—p. 284.
*Anesthetics and the Electrocardiogram. Henrijean and R. Waucomont.—p. 300.

Active Mobilization from the First in Treatment of Joint Injuries.—Willems has been reexamining a number of patients treated by his method seven or eight years ago, and he here describes the ultimate results in fifteen cases of wounds of the knee and five of the elbow. Most of them were shell wounds, and there had been purulent arthritis in five. In this latter group numerous osteophytes have developed, but they do not hamper function, as none grew in or toward the interline. The musculature is remarkable, he says, in these as well as in all the other cases. His principle of systematic active mobilization from the start has been repeatedly mentioned in these columns, as, for instance, Nov. 13, 1920, p. 1370. This recent study of his older cases demonstrates, he says, that the method has realized all that it promised.

Influence of Anesthetics on the Electrocardiogram.—Chloroform and chloral modify the electrocardiogram (dogs), inducing block and appearance of a nodal rhythm. With ether, the sinusal rhythm is maintained throughout. Artificial respiration, with chloroform, helps to maintain the sinusal rhythm much longer. The electrocardiogram can thus be influenced by the respiration.

Presse Médicale, Paris

33: 1713-1728 (Dec. 30) 1925

Inaugural Lecture on Otorhinolaryngology. Canuyt.—p. 1713.
Postural Reflexes and Attitude Reflexes. C. Foix and A. Thévenard.—p. 1714.
The Meltzer-Lyon Gallbladder Function Test. M. Einhorn.—p. 1716.
*Cancer of the Breast. C. Chambacher and W. Rieder.—p. 1718.
*Experimental Epileptic Seizures. L. Jelenkiewicz.—p. 1722.
Import for Biology of Differences in Atmospheric Electric Tension. Pech.—p. 1723.

Deep Roentgenotherapy of Cancer of the Breast.—Chambacher and Rieder obtained surprising results with roentgen rays in treatment of four scirrhous mammary cancers. In two instances the tumor healed after two sittings, given at three and five months' intervals. The recovery has persisted up to three and two years. In two advanced cases with ulcerations and extensive infiltration, apparent healing occurred two months after a single exposure. The pain disappeared completely and the general condition seemed to be excellent. The cure has persisted for eight months in both cases. In the nonscirrhous type of cancer, the roentgen rays proved successful when applied in the early stage. In their fourteen cases one or more series of roentgen-ray exposures induced recovery, still persisting from one to four years. No metastasis from a cancer treated early with the roentgen rays was observed. Deep rays, at the maximal dose tolerated by the skin, should be used. In certain cases it may be necessary to complete the treatment by suppressing the functioning of the ovary by roentgen-ray castration. The roentgen ray or radium or both are considered the method of choice in treatment of cancer of the breast.

Induced Epileptic Seizure.—Jelenkiewicz induced accidentally an epileptic seizure in a nonepileptic woman under treatment for ulcer of the stomach. She had been given 10 cc. of 10 per cent solution of ammonium chloride by the vein, as she was convalescing under Sippy treatment. At the end of the injection suddenly appeared tonic contractions of the limbs and loss of consciousness, followed by clonic contractions. Analogous seizures were induced in rabbits with intravenous injections of ammonium salts. The ammonium, introduced into the general circulation, reaches the nervous system without passing through the liver, where otherwise the ammonium ions are transformed into urea.

34: 1-16 (Jan. 2) 1926

*The Etiology of Tetany. E. Lesné and R. Turpin.—p. 1.
Exotic Syphilis and Neurosyphilis. A. Sézary.—p. 4.
Absorbing Power of the Pleura. L. Binet.—p. 6.
*The Groove on the Median Line of the Upper Lip and the Cupid's Bow. H. Meige.—p. 11.

Etiology of Spasmophilia.—The spasm in tetany, Lesné and Turpin say, seems to be a syndrome of exaggerated neuromuscular excitability, in connection with transient humoral changes. The chronaxia of the nerve and muscle shows that the changes are similar to those induced by vasomotor disturbances, by chilling or brief intoxications. A reduction in calcium ions appeared to be associated with disturbance of the acid-base balance of the plasma in their patients. This humoral syndrome corresponds to that described by Bigwood in epilepsy. It is probable that the acid-base imbalance affects not only the nervous system, but also tissues of ectodermal origin. The functioning of organs controlling the carbohydrate or protein metabolism may also be involved. The theories which ascribe spasmophilia to the parathyroids, to the action of toxins, or to an excess or deficit of calcium do not necessarily conflict, but lack of calcium ions seems to have the surest foundation of them all as the main factor in tetany.

The Upper Lip from the Standpoint of Embryology and of Art.—Meige's illustrated article is intended to show, he says, the reciprocal services that Art and Science can render each other.

Revue Neurologique, Paris

32: 705-832 (Dec.) 1925

The Arteries of the Base of the Brain Up to the Forebrain. C. Foix and P. Hillemand.—p. 705.
*Pain with Sinusitis. Béhague and Dufourmentel.—p. 753.
*Operative Treatment of Gastric Crises. Sicard et al.—p. 756.
*Polyneuritis with Albumin in Spinal Fluid. Thomas and Rendu.—p. 758.
*Defence Reflexes. M. E. Juster.—p. 767.

Pain in Connection with Sinusitis.—Béhague and Dufourmentel warn that occipital headache or trigeminal neuralgia may be the only appreciable manifestation from lurking sinusitis. In a case described, neuralgia of the inferior maxillary was cured by operation on the sphenoidal sinus. Two years later suborbital pains developed, and polyps were found in the ethmoidal sinus. The pains in these sinusitis cases are deeper, more continuous and less definitely localized than with primary neuralgia, although there may be regular exacerbations at certain hours. The sinus disturbance is usually of an obliterating character. In the discussion that followed, Barré called attention anew to chronic cervical arthritis as a cause of occipital headache. He suggests that both posterior sinusitis and cervical arthritis act to induce occipital headache by the intermediation of the vertebral nerve. Only paroxysmal neuralgia, with complete relief from pain during the intervals, calls for blocking the nerve with alcohol.

Chordotomy for Gastric Crises in a Syphilitic.—The cure has been complete for six months to date since the surgical division of the anterolateral columns of the spinal cord on both sides as the last resort in treatment of intensely painful gastric crises, of the tabetic type, in a mechanic aged 29. The sensory by-effects from the operation (between D1 and D2 or between D2 and D3) are of the isothermognosis type, that is, all the sensations of heat and cold are perceived at first as heat. The blood gives a positive Wassermann reaction, but the cerebrospinal fluid is negative and the tendon reflexes are normal, although the Argyll Robertson sign is positive.

Polyneuritis with Albumin in Spinal Fluid.—The young woman suddenly developed intense lassitude, with frontal headache and vomiting, speedily followed by facial diplegia, paresis of the limbs and loss of the reflexes, with the Kernig sign, stiffness of the back of the neck, and 0.2 per cent of albumin in the lumbar puncture fluid. The clinical picture recalled G. Holmes' acute febrile polyneuritis rather than epidemic encephalitis, especially the steady trend to improvement.

Defense Reflexes.—Juster argues that certain so-called defense reflexes do not represent coordinated movements for escape or walking, but are merely a manifestation of an abnormally increased irritability of the spinal cord.

Schweizerische medizinische Wochenschrift, Basel

55: 1193-1216 (Dec. 31) 1925

*Treatment of Pylorospasm. W. Tobler.—p. 1193.
Psychic Causes of Gynecologic Disturbances. H. Meyer-Rüegg.—p. 1199.
Basal Metabolism Determinations. W. Steiner.—p. 1202.
Treatment of Paroxysmal Tachycardia. M. Gilbert.—p. 1207.
Swiss Winter Health Resorts and Sports. W. Knoll.—p. 1209.

Treatment of Pylorospasm.—Tobler publishes serial details of the history of infants with pylorospasm, showing the beneficial action of diathermy.

Policlinico, Rome

32: 1745-1782 (Dec. 14) 1925

*Malaria Treatment of Leukemia. T. Lucherini.—p. 1745.
Capillary Striae Over Apical Process. T. Costa.—p. 1747.
*Sign of Acute Process in Abdomen. E. Mondolfo.—p. 1748.
Microscopic Diagnosis of Rabies. G. Pinzani.—p. 1748.
Case of Purpura from Arsenical Treatment. C. Feluco.—p. 1750.

Treatment of Leukemia with Inoculation of Malaria.—Lucherini describes a case of subacute leukemia in a boy, aged 14, with extreme anemia and fever, the spleen very large and hard and likewise the liver. The leukocytes numbered 250,000 (73 per cent myeloblasts) and the erythrocytes 1,500,000, with 24 per cent hemoglobin. Sept. 2, 1925, he was injected subcutaneously with 3 cc. of blood infected with *Plasmodium vivax*. After twelve days of continuous remittent fever, he developed the first malarial attack. After twelve attacks the malaria was arrested with 1.5 Gm. of quinine daily, and a month later the leukocytes numbered 5,800, the erythrocytes, 3,880,000, with hemoglobin 52 per cent. The leukocytes were nearly all of mature types. The spleen had been reduced to nearly half its former size, and its consistence was more normal, as also the various lymph glands that had been enlarged. The general condition was constantly and progressively improving, with good appetite and spirits, during the six weeks to date of writing.

Reflexes in Acute Conditions of Abdomen.—Mondolfo calls attention to the different behavior of the abdominal reflexes, on the two sides, with acute localized inflammatory processes.

Archivos Españoles de Pediatría, Madrid

9: 641-704 (Nov.) 1925

Nutritional Disturbances in Infants. Suñer Ordoñez.—p. 641.
*The Mental Sequelae of Epidemic Encephalitis. G. Vidal Jordana.—p. 676.
*Congenital Tuberculosis of Mesenteric Glands. E. L. de la Alberca.—p. 687.

Psychic Sequelae of Epidemic Encephalitis.—Vidal Jornada suggests that certain congenital diseases characterized by motor and mental disturbances may be traceable to epidemic encephalitis in the mother, possibly unsuspected. Children over the age of 5 presenting the sequelae of epidemic encephalitis are encountered comparatively frequently, but the acute phase is very rarely seen. It had escaped detection in fourteen of Moore's twenty-three cases, as also in the three personal cases here described, a girl of 13 and two boys of 9 and 6. The character of the previously docile and diligent children had entirely changed to morose apathy, rousing only to fits of extreme anger and destructive tendencies. The boy of 9 bit his father's hand furiously as he was being brought for examination. All displayed insomnia or, rather, inversion of the rhythm of sleep, accompanied by violent nocturnal excitement. In the youngest boy, the sleep disturbances with almost maniacal excitement all night were in a pure form, except that the three children had not developed mentally to keep pace with their apparently normal physical growth.

Primary Tuberculosis of Mesenteric Glands.—De la Alberca reports three cases in which death at the age of 1 month, 7 weeks and 5 months was explained by cheesy tuberculous mesenteric glands. No other tuberculous lesions were discovered at necropsy. He remarks that these congenital primary lesions might be found more often if systematically sought.

Boletin del Inst. de Clín. Quirúrgica, Buenos Aires

1: 85-106, 1925

The Reenstierna Skin Test for Chancroid and Treatment with Nicolle's Vaccine. S. Mazza.—p. 85.
*Rhinoplasty by the Argentine Method. O. Ivanissevich.—p. 94.
Technic for Frazier and Spiller's Chordotomy. M. Balado.—p. 97.
Hunter's Treatment of Spastic Paralysis. M. Balado.—p. 102.

Reconstruction of the Nose by the Argentine Method.—Ivanissevich gives illustrations from one typical case among the ten in which the nose was reconstructed with a flap from the ear. The thumb was sutured to a pedunculated flap at the back of the ear. The eighteenth day the flap was cut loose from the ear, and sutured to the nose. In fifteen days the hand was cut loose, and the nose was remodeled at leisure. This auriculodigitorhinoplasty was first published in 1921. This is one of the cases shown in the motion picture film, "Rhinoplasty." The patient had had part of the nose and upper lip sliced off in a brawl.

Repertorio de Medicina y Cirugía, Bogota

16: 457-510, 1925

The Boy Scout Movement. Sra. Maria Pérez de Mendoza.—p. 461.
*Periarterial Sympathectomy. L. Leyva Pereira.—p. 491.
Bladder Stones in Children. R. Sanmartin L.—p. 502.

Periarterial Sympathectomy in Treatment of Leg Ulcer.—Leyva Pereira states that in his eleven cases the lesion healed after the periarterial sympathectomy more promptly and completely than has been reported elsewhere in the world, according to accessible literature. He supplemented the sympa-

thectomy with resection of the saphenous vein in the varicose ulcer cases. The ulcers were of long standing, up to five and ten years, and in some of the eleven cases were of the so-called tropical type or resulted from a mishap in injection of neo-arsphenamine. The decortication was on the femoral artery in all, and no local measures were applied during the treatment. In some of the cases, healing was complete in two weeks. In endarteritis obliterans the pain was not much relieved but other symptoms improved. In one case, from a burn on the sound leg, the day of the operation, lymphangitis developed and proved fatal the twelfth day; the ulcer had healed in the interim.

Revista Médica de Barcelona

4: 425-528 (Nov.) 1925

*Syphilitic Pregnant Women. V. Marqués Bertrán and J. Muñoz Arbat. —p. 428.
Pulmonary Tuberculosis in Young Children. M. Salvat Espasa.—p. 442.
*Is the Malaria Plasmodium Single or Multiple? Sadi de Buen.—p. 460.
*Coagulation of the Blood in Tuberculosis. F. Mas y Magro.—p. 464.
Aphasia. J. Sanchis Banús.—p. 471.
Arrhythmias. F. de A. Estapé.—p. 480.

Treatment of Syphilitic Pregnant Women.—This is a plea for renewed treatment at every pregnancy, regardless of symptoms, when there is a history of syphilis at any time.

The Malaria Plasmodium.—Sadi de Buen presents data compiled by the Spanish antimalaria commission in recent years which seem to demonstrate that the tertian, quartan and estivo-autumnal forms of the plasmodium represent three distinct species. Measures effectual against the others, do not affect the tertian.

Coagulation of the Blood in Pulmonary Tuberculosis.—Mas y Magro has recorded the coagulation time in 550 cases of disease of the respiratory apparatus. In 300 tuberculous cases, the coagulating time averaged eleven and five-tenths minutes; in 120 nontuberculous patients, eight and five-tenths minutes, and in the healthy controls, ten minutes. The leukocytes in these groups numbered 10,900, 10,700 and 7,000; the blood platelets 472,000, 322,000 and 250,000.

Beiträge zur klinischen Chirurgie, Berlin

135: 1-222, 1925

Experimental Embolism in Abdominal Aorta. O. Wiedhopf.—p. 1.
*Continuous Traction for Fracture. A. Lehrnbecher.—p. 18.
Steinach's Vasoligation. H. Benjamin (New York).—p. 58.
Heterotopic Endometroid Growths. W. Hollmann.—p. 84.
*Gen Pathology. K. H. Bauer.—p. 96.
Technic for Extirpation of the Rectum. K. H. Bauer.—p. 114.
*Genesis of Ulcer and Gastro-Enterostomy. W. Koennecke.—p. 118.
Treatment of Harelip. H. Meyer.—p. 136.
*Blocking the Nerve to Correct Flatfoot. H. Meyer.—p. 150.
A Retroperitoneal Tumor. H. Tammann.—p. 161.
Goiter from Histologic and Clinical Standpoints. Beykirch.—p. 165.
Lymphosarcoma. H. Meyeringh.—p. 185.
Healing Process After Operations on Biliary Ducts. Seulberger and Pollwein.—p. 203.

Treatment of Fractures.—Lehrnbecher extols the advantages of the Braun frame for the leg and thigh in combination with continuous traction. The Schmerz clamp gave better results than adhesive plaster for the grasp on the bone. He gives twenty illustrations of the technic he applied in his seventy-six fractures of the femur and 107 below the knee since 1919. Of the eighty before 1923, fifty-six have recovered completely; thirty-two are receiving 10 to 20 per cent workmen's compensation, and only two, compensation of 30 per cent or more.

Pathology of the Gen.—Bauer explains that breeding experiments on animals with spontaneous or induced deformities, such as cataract, polydactylia or albinism, may throw light on the pathology of the gen and on the pathogenesis of such anomalies. Hemophilia, for instance, suggests that there must be a physiologic gen for formation of thrombokinase, and thrombopenia that there must be a gen for formation of blood platelets. Blood grouping can be studied on animals. These and other facts cited open a broad field for experimental research on gens and the antibodies against them. The study of heredity can be made an exact science by systematic, well planned and sufficiently numerous experiments, when the technic for biologic research has been developed on animals and the sources of error avoided. The greatest progress in biology of the present century has been in the study of heredity. Not only in stock raising and agriculture but in pedagogics, mathematics and even philosophy there is eager study of the laws of heredity. Medicine, the daughter of Biology, has only just begun to glimpse the possibilities of heredity for her. After the discovery of the cell in 1833, twenty years elapsed before Virchow made this discovery useful for medicine by his "cellular pathology." It is now twenty-five years (including five years of war) since the discovery of the gen.

Pathogenesis of Gastric Ulcer.—Koennecke insists that resection of the pylorus end of the stomach removes the cause of ulcer formation, while a gastro-enterostomy is a leap in the dark except when it is directly indicated for ptosis or other reason in the absence of ulcer and pylorostenosis.

Treatment of Flatfoot by Blocking the External Popliteal Nerve.—Meyer accomplishes this by freezing the nerve, and has found it answer the purpose perfectly in cases of flatfoot entailed by contracture from some inflammatory process. He exposes the nerve above the head of the fibula and slips a strip of lead, 1 cm. wide, underneath and sprays the nerve with ethyl chloride. Freezing in this way for two or three minutes blocks the nerve completely for about six months In thirty-four of his total fifty-three cases, the patients were adolescents. In all without exception the function of the popliteal nerve had returned by the fifth to the seventh month. The contracture had been cured in all, but some neglected the after-treatment and only forty got the full benefit of the functional correction. After-treatment requires revision of the flatfoot inlay every four to six weeks. The deficit phenomena are so slight that even in twelve cases of bilateral freezing, the earning capacity is not impaired.

Deutsches Archiv für klinische Medizin, Leipzig

149: 129-381 (Dec.) 1925

Myotonic Dystrophia. H. Curschmann.—p. 129.
Traumatic Origin of Arteriosclerosis. A. Schmincke.—p. 145.
Changes of Acidity of the Blood. Gollwitzer-Meier.—p. 151.
Microscopy of Sweat Secretion. E. Jürgensen.—p. 157.
*Chlorides After Irradiation. A. Engelhard and H. Sielmann.—p. 168.
*Blood Pressure and Kidney Changes. K. Beckmann.—p. 177.
*Vomiting and Emetics. P. Klee and L. Laux.—p. 189.
Amplification of Action Currents. W. Mobitz.—p. 209.
Sensory Disturbances with Lesions of Lateral Column.—Bremer.—p. 213.
Pulse Examination. H. Straub and C. Kroetz.—p. 230.
Porphyrin Diseases. H. Weiss.—p. 255.
Pulsation in the Liver. W. v. Kapff.—p. 279.
*Hypochloremic Diabetes Insipidus. W. H. Veil.—p. 289.
*Professional Wrestlers. A. E. Lampé et al.—p. 317.
*Atropine Resistance in Encephalitis. F. W. Bremer.—p. 340.
*Potassium-Calcium Ratio. E. Kylin and G. Myhrman.—p. 354.
Blood Coagulation in Scurvy. N. N. Pissarewsky.—p. 366.
Cardiography. W. Weitz.—p. 372.

Excretion of Chlorides After Irradiation.—Engelhard and Sielmann observed a lowered excretion of chlorides by the kidneys following roentgen irradiation. Irradiation of the blood in vitro produced no shifting of the chlorides.

Blood Pressure and Kidney Changes.—Beckmann produced a slight but undeniable hypertension in rabbits by repeated injections of d-epinephrine. The capillary pressure was also increased, but no kidney changes were noted. Lead poisoning increased the capillary pressure. This is probably not due to the simultaneous slight lesions of the kidneys. Experimental nephritis induced by diphtheria toxin and uranium nitrate causes surprisingly parallel changes of the kidneys and of the pressure—especially in the capillaries. A renal origin of the hypertension is not impossible, here.

Vomiting and Emetics.—Klee and Laux found that the fundus part of the stomach in cats cooperates in expulsion of its contents into the esophagus. No vomiting movements were obtained when both the splanchnic and vagus nerves had been severed. Blocking either one merely made larger doses of apomorphine necessary. Even the reflex vomiting after ingestion of copper sulphate could still be produced after severing the vagus.

Hypochloremic Diabetes Insipidus.—Veil observed a case of diabetes insipidus with low concentration of blood chlorides in a young girl with other postencephalitic symptoms. Thirst again increased the weight of the patient. This was due to a decrease of her metabolism (the basal rate was +48 per

cent when drinking freely, and + 27.5 per cent during restriction of fluids and —1.1 after three days of atropine treatment). This constitutes one of the main differences from the hyperchloremic type, which has a normal or low metabolism and reacts to restriction of fluids with loss in weight and grave symptoms. Atropine has no effect in this latter group. The former group differs from polydipsia by the low chloride content of the serum: chronic ingestion of large amounts of water causes hyperchloremia.

Professional Wrestlers.—Lampé, Weltz, Heinrich and Straubel examined repeatedly twenty-one professional wrestlers before and after the bouts. One of the subjects had all the clinical signs of a syphilitic insufficiency of the aorta; another had a chronic nephritis with a blood pressure of 240 mm. of mercury! The majority had rheumatic changes in the left pectoral muscle. Lack of training may entail a dilatation of the heart after the bout. The same heart may become smaller later on, when the man is in good training condition. They believe that this together with an increased blood pressure and quick return of the pulse toward a normal frequency are good signs. Enlargement of the heart with lowered pressure and persisting acceleration of the pulse indicate in their opinion a bad cardiovascular condition. They found in the majority of wrestlers after the bout a low alveolar tension of carbon dioxid—sometimes only 18 mm. mercury. This is probably due to the hyperpnea during the fight.

Atropine Resistance in Encephalitis.—Bremer found in three out of six serums from patients with postencephalitic symptoms an absorptive capacity towards atropine and pilocarpine. This resembles Fleischmann's observations on the serum from rabbits, and may account for the high atropine tolerance in encephalitis patients.

The Potassium-Calcium Ratio in the Blood.—Kylin and Myhrman injected epinephrine in 119 subjects after determining the potassium and calcium content of the serum. The lower the potassium-calcium ratio, the stronger, generally speaking, the rise in blood pressure (sympathicotonia). The higher the ratio, the more prominent was the lowering of the blood pressure (vagotonia). The second group occurs with asthma, essential hypertension and vagotonic neuroses. Diabetes in the young belongs to the first group. The calcium content varied in healthy persons between 10.6 and 12 mg. per hundred cubic centimeters; in pathologic conditions, between 9.1 and 12.9. The potassium content varied in health between 18 and 23 mg.; in patients between 14.3 and 38.3. The potassium-calcium ratio was in health 1.70 to 2.15; in disease 1.35-3.48. The highest figure was obtained in a case of grave insufficiency of the kidneys.

Deutsche medizinische Wochenschrift, Berlin

52: 1-48 (Jan. 1) 1926

*Pancreatic Digestion of Protein. R. Willstätter.—p. 1.
*Treatment by Injection. C. Hirsch.—p. 2.
Hormone of the Estrual Cycle. P. C. Hart et al.—p. 4. C'td.
*Fat Soluble Vitamin. E. Poulsson.—p. 6.
Metabolism in Diagnosis of "Neuroses." H. Curschmann.—p. 9.
*Syphilis and Relapsing Fever Spirochetosis. W. Kolle.—p. 11.
Perforated Gastric Ulcer and Jejunostomy. Enderlen.—p. 13.
Ventricle Electrocardiogram. F. B. Hofmann.—p. 15.
*Ulcus Serpens of the Cornea. K. Wessely.—p. 17.
*Mixture of Constitution in Healthy Mates. E. Kretschmer.—p. 20.
Roentgen Diagnosis of Spinal Canal. H. Peiper.—p. 22.
*Reversion of Hemolysis. W. Starlinger.—p. 25.
Practical Therapy. H. H. Meyer.—p. 26.
Standardization of Endocrine Preparations. P. Trendelenburg.—p. 26.
Treatment of the Heart in Nephritis. H. Strauss.—p. 28.
Action and Use of Diuretics. W. Nonnenbruch.—p. 30.
Syphilitic Spinal Paralysis. F. Pick.—p. 33.
Vocational Physical Examination. Hanauer.—p. 34.
Tuberculosis of Epididymis and Testis. E. Wehner.—p. 46.

Pancreatic Digestion of Protein.—Willstätter reviews the recent improvements in purification of ferments obtained in his institute. A development of adsorption methods and of methods for separation of the ferments from the adsorbing substance at different reactions has made this possible. Many properties attributed hitherto to the ferments were due to impurities. For instance, the optimum of the reaction has been cited as the main difference between the gastric and the pancreatic lipase. Yet it is due to an admixture of an inhibitory substance, acting in alkaline mediums, and possibly also of an activator which develops its function in an acid medium. The lipase, trypsin and amylase of the pancreas have been successfully separated. Moreover, the proteolytic ferment consists of two separable fractions. One of them, the true trypsin, hydrolyzes peptone even without being activated. After addition of enterokinase, it hydrolyzes casein, fibrin, gelatin, and other practically native substances. It does not split peptids, which are all hydrolyzed by the second pancreatic ferment, identical with the erepsin of the intestine.

Treatment by Injection.—Hirsch quotes Hanzlik's and Handovsky's research and other evidence which show that intravenous injections are by no means innocuous.

Fat Soluble Vitamin.—Poulsson shows the parallelism between the incidence of xerophthalmia and the exportation of butter in Denmark. Thousands of Japanese children died every year under symptoms of diarrhea, atrophy, xerophthalmia (the Hikan disease), until Mori began to treat them with the oil of a fat fish. Poulsson emphasizes the necessity of resorption of fat as a vehicle for the vitamin. This explains the xerophthalmia cases observed in jaundice. Subcutaneous injection of an extract from cod liver oil cured one of these patients. The liver of male cods contains more oil than the liver of the female codfish. The sperma contains twice as much vitamin as the roe. The liver fat from certain other fishes contains about the same amount of vitamin as cod liver oil. Plants form it in the sea as well as on the land. He mentions the probability of the presence of several vitamins in the fat, and the method of their concentration.

Syphilis and Relapsing Fever Spirochetosis.—Kolle confirms Reiter's observation on the susceptibility of a large percentage of syphilitic rabbits to other strains of the syphilis spirochetes. This shows the great difference between the disease in rabbits and in man. He finds that reinfections occur in man after abortive treatment of syphilis much less frequently than might be expected. This may be due to the development of true immunity.

Ulcus Serpens of the Cornea.—Wessely is more than skeptical as to the results of chemotherapy. He pleads for cautious cauterization with his tube, which is heated by steam. The temperature of 98 C. thus obtained is much less injurious than the galvanocautery, and the ultimate results have been much better.

Mixture of Constitution in Healthy Mates.—Kretschmer investigated on 100 married couples of his acquaintance and on seventy more of another psychiatrist the problem of the attraction by similar or different qualities. The large majority of the pairs were of different types; frequently the temperament of one was the direct opposite of that of the other. Similarity was observed practically only in the quiet middle stratum of the temperaments. It was to be expected that two autistic schizoids would be too self-centered to be attracted to each other. It was, however, surprising to see that of thirty-seven subjects of the hypomaniac type only two mated. The rest—healthy, joyous natures, fond of associating with persons of similar tastes—married chiefly their opposite: cold-natured schizothymics. The soft and weak men married mostly energetic, sometimes hard and sharp women. Contrary to expectation, the latter marriages were harmonious. He concludes that his material demonstrates the deep influence of instinct in the choice of a mate. It is something beyond and above the individual, and it sometimes conflicts with the individual rational satisfaction. It can be explained only from the higher standpoint of progeny. The mating of individuals standing at the dangerous opposite extremes prevents the breeding of such extremes, and promotes their healthy biologic mixture. The mating of similar constitutions is innocuous only with the well balanced middle constitution, and occurs therefore instinctively more frequently in this class.

Reversion of Hemolysis.—Starlinger found that in the same individual about the same quantity of hemoglobin returns to the stroma after addition of salts to the laked blood. The amount changes after blood transfusions and protein injections. Pernicious anemia shows an extremely high degree of reversibility of hemolysis.

Deutsche Zeitschrift für Chirurgie, Leipzig

194: 1-144 (Dec.) 1925

*Habitual Dislocation of the Shoulder. G. Perthes.—p. 1.
*Transplantation of Kidneys. L. Lurz.—p. 25.
*Mechanical Dyspnea. R. Nissen and P. Cokkalis.—p. 50.
Treatment of Cancer. A. Theilhaber.—p. 91.
Anomalies in the Arm Vessels and Nerves. W. Lubosch.—p. 105.
Mobilization of the Knee. R. Bonn.—p. 114.
Cancer of Lungs Simulating Abscess. Krampf.—p. 128.
Ileus from Cystic Lymphangioma. R. Reinecke.—p. 133.
Myoma of the Gubernaculum. H. Kohler.—p. 138.
"Hemorrhages from Urinary Organs." E. Joseph.—p. 142.

Habitual Dislocation of the Shoulder.—Perthes criticizes the surgical methods of treatment of habitual dislocation of the humerus and pleads for the method devised by him in 1906. Its main feature is suture of the capsule of the joint which is torn off in such cases. He had fine results in all of his eleven patients. Five of them can move the arm perfectly freely.

Transplantation of Kidneys.—Lurz succeeded in two out of twenty-eight autotransplantations of a kidney in dogs. He confirms the increased diuresis and elimination of chlorides on the denervated sides. The ureter contracted normally. There was no reaction of the transplanted kidney or ureter to psychic stimuli.

Mechanical Dyspnea.—Nissen and Cokkalis produced an artificial stenosis of the trachea in dogs and rabbits. The inspiratory dyspnea caused by it disappears after bilateral exeresis of the pneumogastric. It is therefore at first due to centripetal disturbances of the vagus. It reappears only when the physico-chemical condition of the blood changes. The expiratory dyspnea is due to a functional change of the breathing mechanism—very rarely to mechanical causes. The negative intrapleural pressure increases progressively, and at the same time the right ventricle hypertrophies and dilates. The edema of the lungs which occurs after sudden relief from the tracheal stenosis is of similar origin to the edema following evacuation of a large pleuritic exudate.

Jahrbuch für Kinderheilkunde, Berlin

111: 1-126 (Dec.) 1925

*Gastric Secretion. K. Iwanoff-Gluchowa and A. Sawschinsky.—p. 1.
*Gastric Secretion in Infants. A. B. Wolowik.—p. 9.
Fasting Secretion in Infants. A. B. Wolowik.—p. 21.
Blood and Constitution. A. F. Tur.—p. 29.
*Mongolian Idiocy. J. Vas.—p. 51.
*Toxic Gastro-Enteritis. G. Jörgensen.—p. 63.
Intestinal Infantilism. O. Göttche.—p. 81.
Gastrectasia in Children. Bogen and Schmiemann.—p. 94.
*Pancreas Treatment of Digestive Disturbances. P. Leitner.—p. 105.
Porencephaly. H. Kikuth.—p. 112.

Gastric Secretion.—Iwanoff-Gluchowa and Sawschinsky believe that the Ewald test meal induces only the "reflex" not the "chemical" secretion. They prefer 200 cc. of a 5 per cent or 10 per cent solution of Liebig's meat extract. The maximum secretion is obtained in an hour and a half or two hours after its administration. By this time all of the extract has left the stomach, and it stimulates the gastric secretion from the blood. This confirms Rasenkoff's experiments on the action of extractive substances injected intravenously. The latter author also induced secretion by injecting blood drawn during digestion of extractive substances.

Fasting Secretion in Infants.—Wolowik observed a periodic gastric secretion in fasting infants. This gastric juice contains various amounts of acid. In some of the infants free hydrochloric acid was always present; in others only at times, and it was absent in a third group.

Mongolian Idiocy.—Vas finds that mongolian idiocy is no more frequent in Hungary with its predominance of the Magyar Mongolian race than in countries inhabited by the white race. One of his patients was a girl whose twin brother was healthy. The Löwy reaction was negative, the Aschner reflex positive in all his forty cases. Sergent's "suprarenal white line" could be produced in 75 per cent of them. The blood pressure was low, and the coagulation time seemed to be prolonged.

Toxic Gastro-Enteritis.—Jörgensen attributes to the Welch bacillus the etiologic rôle in acute toxic gastro-enteritis of infants. Its spores are introduced by the milk, and it develops a poison in the presence of sugars, probably in vivo as well as in vitro. Therefore it is rational to exclude carbohydrates from the food in such conditions.

Pancreas Treatment of Digestive Disturbances.—Leitner found little if any trypsin in the feces from dystrophic infants and children or those suffering from enteritis or colitis. He had good therapeutic results with administration of a pancreas preparation by mouth, four times daily.

Monatsschrift für Geb. und Gynäkologie, Berlin

71: 249-388 (Dec.) 1925

*Difference in Size of Twins. T. Brandess.—p. 249.
Psychotherapy. M. Braun.—p. 258.
Retro-Uterine Tar Cyst. O. von Franqué.—p. 263.
Spontaneous Torsion of Adnexa. B. Beuthner.—p. 272.
Treatment of Sterility in Women. G. Schwarz.—p. 283.
Primary Cancer of Fallopian Tube. A. Schlaak.—p. 294.
Diagnosis of Appendicitis. König.—p. 304. Idem. Leendertz.—p. 313.
Appendicitis in Women. K. Fink.—p. 328.
Duration of Pregnancy. H. Gummert.—p. 339.

Difference in Size of Twins.—Brandess investigated the causes for a marked difference of size in twins. In ten of his cases the difference in length was more than 5 cm. Four of the mothers had had hemorrhages during pregnancy. He is inclined to believe that accidental factors are responsible for the more pronounced differences.

Münchener medizinische Wochenschrift, Munich

72: 2223-2240 (Dec. 25) 1925

*The Rumpel-Leede Phenomenon. R. Stephan.—p. 2223.
Case of Feer's Disease. M. Müller.—p. 2224.
*Color of Iris. K. Münch.—p. 2225.
Treatment of Dyspepsia in Infants. Wieczorek.—p. 2228.
"Sleep Disturbances in Children." A. Hartmann.—p. 2229.
Technic of "Clean" Porro. H. Hinselmann.—p. 2229.
Reposition of Dislocated Mandible. D. Kulenkampff.—p. 2229.
Expulsion of Foreign Body Through Wall of Bladder. Berger.—p. 2230.
Treatment of Beginning Gonorrhea. F. Schmidt.—p. 2230.
Treatment of Gonorrheal Complications. H. Hecht.—p. 2231.
Dispensary for Venereal Diseases. L. Wolff.—p. 2231.

The Rumpel-Leede Phenomenon.—Stephan admits Walterhöfer's observation on the possibility of inducing intracutaneous capillary hemorrhages in practically every subject by constriction of the arm. Yet he emphasizes the quantitative differences. He uses a broad rubber cuff and induces for five minutes a stasis which leaves the radial pulse just palpable. A negative result does not exclude a lesion of the capillaries. A positive result proves it. He also reiterates his observations on the acceleration of the coagulation of blood from one group of these patients by addition of inactivated normal serum. This group is connected with a deficiency of the thermostable thrombokinase.

Color of the Iris.—Münch reviews the evidence for his theory that the chromatophores of the iris are a type of muscle cells, and act as the real dilator of the pupil. He thinks that Henle's muscle is too thin to account for dilatation. He believes that the pigment is not absent in the anterior portion of the iris of blue eyes, but assumes that it is not colored.

Zeitschrift für die ges. Neurol. u. Psychiatrie, Berlin

100: 1-138, 1925. Dedicated to W. Bechterew. Partial Index

*Comparative Function of Brain Hemispheres. S. E. Henschen.—p. 1.
*Biologic Interpretation of Reflexes. Astwazaturow.—p. 70.
*The Upper Lid Symptom. A. W. Gerwer.—p. 101.

Comparative Functioning of the Right and Left Hemispheres of the Brain.—Henschen compares the functioning of the right and left hemispheres in regard to speech, music and mathematics, emphasizing the law that when Nature develops one of a pair of organs to exceptional efficiency, its mate is sacrificed. In quadrupeds, predominance of one side over the other has never been demonstrated, and the findings in monkeys are conflicting. He reviews data which seem to show that the right hemisphere has always been organically inferior to the left. The left side of the skull is often more prominent than the right in particularly talented persons (Cesar, Napoleon, Goethe), and he noted it in an Egyptian mummy and in a gorilla. A prehistoric wall painting (Mag-

dalène Cave) shows a man carrying a stick on his right shoulder. He was, then, right handed, the better developed motor neurons being in the left hemisphere. These and other facts cited seem to testify that the right hemisphere in man has been inferior from the earliest days of mankind.

Biologic Interpretation of the Behavior of the Reflexes in Disease of the Pyramidal Tracts.—Astwazaturow explains that disease in the cortex pushes the nervous system back into an earlier stage of evolution. The behavior of the reflexes does not depend on whether they are superficial or deep, but on their phylogenetic rank. The reflexes that date from the infancy of the race are exaggerated or roused from a latent stage, while the more recently acquired reflexes drop out.

The Upper Lid Symptom.—Gerwer's later experience has confirmed the diagnostic importance of the effort required to open the eyes after holding them closed for three to seven seconds. In nervous and mental disease, with depressed conditions in general, this eyelid symptom is often the first objective manifestation. It seems to be in closer connection with functions of the central nervous system than the ordinary symptoms of neurasthenia (tremor, dermography, etc.). It may prove useful in excluding suspicion of malingering.

Zeitschrift für Tuberkulose, Leipzig

44: 1-96 (Dec.) 1925

*Tuberculosis Mortality in Saxony. F. A. Weber.—p. 3.
Curable Tuberculous Infiltrates. F. Fassbender.—p. 35.
Treatment of Tuberculosis of Bones and Joints. E. Rüscher.—p. 45.
Complement Fixation in Tuberculosis. Max Pinner (Chicago).—p. 49.
*Tuberculosis and Myopia. G. Hirsch.—p. 52.
Active and Inactive Tuberculosis. H. Kotzerke.—p. 56.
Soap Treatment of Tuberculosis. K. Brünecke.—p. 58.

Tuberculosis Mortality in Saxony.—Weber publishes elaborate tuberculosis statistics on Saxony—the German state with the lowest incidence of tuberculosis. There is no parallelism between the industrial sections and the sections most affected with tuberculosis. The type of the occupation, as well as the general living conditions, play the most important rôle. The conditions in certain regions with old, well organized mills are better than in some of the rural districts.

Tuberculosis and Myopia.—Hirsch compares the frequency of tuberculosis and of myopia from 1895-1914. He sees a close parallelism which he considers further evidence sustaining his theory of the tuberculous origin of myopia. He believes that the toxins of tuberculosis act on the vasomotor nerves of the posterior part of the eyeball. The ratio of the tuberculosis mortality to myopia is about as 1:109.

Zeitschrift für Urologie, Berlin

19: 881-952, 1925

Large Calculus in Left Kidney. W. Hofmann.—p. 881.
Syphilis of the Seminal Vesicles. F. Keve.—p. 885.

Arkhiv Biologicheskikh Nauk, Moscow

24: 163-299. Partial Index

Hydrogen Ion Concentration of Gastro-Intestinal Juices. V. Arkhangelsky.—p. 163.
*Spectrophotometric Test for Ammonia. V. Arkhangelsky.—p. 169.
*Vaccination Against Paratyphoid. U. Sokolova.—p. 193.
*The Wildbolz Urine Reaction in Tuberculosis. K. Vvedensky.—p. 211.
*Technic for Staining Acid-Resisting Bacilli. O. Fondarinova.—p. 247.
Mechanism of Action of Cyon's Nerve. A. Krestovnikoff and V. Savitch.—p. 279.

Determination of Ammonia in the Blood.—Arkhangelsky mixes 10 cc. of blood with 0.2 cc. of Nessler's reagent. The measurement of the amount of ammonia is read two and a half hours later by the spectrophotometer. He examined the blood of three normal dogs, three fasting, and four with the parathyroid glands removed. The amount of ammonia shown harmonized with that found by other methods. The errors with the spectrophotometric method are insignificant; it reveals the presence of 0.03 and even 0.005 Gm. of ammonia in 1 cc. of blood. The quantity of ammonia appeared increased in the parathyroidectomized animals during the tetany. After the animals had been treated with calcium, the amount of ammonia in the blood did not increase, but tended to decrease. Arkhangelsky emphasizes that the method is simple and rapid.

Oral Immunization Against Paratyphoid.—Sokolova's experiments were conducted on guinea-pigs and rabbits. Immunization with paratyphoid N vaccine, given by the mouth, was followed by accumulation of agglutinins in the blood. The immunized animals were injected intra-abdominally with agar cultures of the paratyphoid bacillus N. The injection of the culture was followed in from two to twenty-four hours by leukocytosis in the immunized, while in the controls it induced reduction of the leukocyte count. The immunized guinea-pigs resisted from two to ten lethal doses of the paratyphoid culture and died only when twenty lethal doses had been given, and only on the fourth to the seventh day. The controls died from the same doses within the first day.

The Wildbolz Urine Reaction in Surgical Tuberculosis.—Vvedensky applied the Wildbolz test in fifty-six patients with surgical tuberculosis and in twelve with traumatism or benign tumors. A total of 316 tests was made. The reaction was positive in thirty-two of thirty-six patients with a marked tuberculous process. In four with encapsulated tuberculous foci; in twenty with nontuberculous surgical affections, and in twelve healthy subjects the reaction was negative. No general or local complications occurred with the reaction. (The Wildbolz auto-urine test was described in THE JOURNAL, Dec. 18, 1920, p. 1755.)

Method for Staining Acid-Resisting Bacilli in Milk.—After centrifugalization Fondarinova adds carbol fuchsin to the milk. It is decolorized with sulphuric acid and then treated with alcohol and chloroform or ether. The slide is rinsed, and counterstained with methylene blue. Tests were made on fifteen samples of market milk at Leningrad. With the Ziehl-Neelsen method, acid-resisting bacilli were found in one sample; with the modified technic in two. No bacilli were detected by the old method in smears from the upper layer of the centrifugalized milk; with the modified method they were found in five.

Ugeskrift for Læger, Copenhagen

87: 1099-1124 (Dec. 10) 1925

*The Diffusible Glucose in the Blood. C. Lundsgaard and S. A. Holbøll.—p. 1099.
*Pathogenesis of Jaundice. E. Meulengracht.—p. 1103. C'en.
Conservation of Procaine-Epinephrine Solutions. L. E. Walbum.—p. 1106.
Reply. M. Melchior.—p. 1187.
"Injection Treatment of Varicose Veins." V. Meisen.—p. 1108.
The Question of a Public Institution for Treatment of Rheumatic and Nervous Affections. H. Jansen.—p. 1116.

Free and Combined Glucose in the Blood.—In this tenth report of their research on carbohydrate metabolism, Lundsgaard and Holbøll confirm that the red blood corpuscles give up all their sugar content to the plasma when it does not contain sugar already. This testifies that the glucose in the erythrocytes is in a free, diffusible form. Experiments which apparently prove the reverse are explained by the unphysiologic character of the fluids used in the tests (saline solution, etc.).

Pathogenesis of Jaundice.—Meulengracht's article opened the discussion on this subject at the internal medicine congress of the Northland. He presents data to prove that jaundice is due most frequently to impairment of the excreting function of the liver, and that this is generally traceable to inflammatory or degenerative changes in the liver cells themselves. Any mechanical obstruction to the outflow of bile causes the bile to back up in the liver cells, damaging them. Even without mechanical obstruction elsewhere, any deficiency in the excretory function of the liver entails an accumulation of preformed bile pigment in the liver cells. The result is a liver affection analogous to parenchymatous nephritis or nephrosis. He rejects Virchow's conception of "catarrhal icterus" as due to plugging of the biliary passages with accumulations of mucus; he transfers the source of the trouble to the liver itself. The changes in the liver in the severer cases resemble those in acute atrophy of the liver. Instances are known in which so-called catarrhal jaundice has merged into acute atrophy or cirrhosis of the liver. He adds that the excretory function may be impaired with the other functions still intact.